

AMERICAN VETERINARY REVIEW.

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EDITORIAL.

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PARIS, May 15, 1910.

INSOLUBLE SALTS OF RADIUM IN THERAPEUTY.—At the present time when the application of radium and its compounds seem to enter in the treatment of some specific diseases, the following remarks extracted from a communication of Dr. H. Dominici on the question will prove of interest for comparative pathologists, namely veterinarians.

The experimenter who is studying the effects of radium upon living tissues has two fundamental methods at his disposal: the one in which the organs are exposed to the radiation from apparatuses that contain the salt of radium, and the other in which the said salt is injected directly into them.

The first of these methods uses radium salts fixed upon linen or metallic supports or enclosed into tubulated recipients. The salt and its emanations are isolated from the organic elements, which are then influenced only by the radiation sent from those radiiferous apparatuses.

In the second method, the radium salt is injected into the interstices of tissues. The radiation due to the salt is diffused in the organic tissue, is dissolved into it, metamorphosed in it, and it conveys to the living elements an induced radio-activity or the power of sending off the various strength of rays. Of these two

methods, the second has been used a great deal less than the first, on account of reasons of physiological and economical order. Indeed, the first experimentors who employed injections of radium, used soluble salts, whose local and general action is at the same time temporary and from the start decreasing, as the soluble product is rapidly carried away beyond the zone where it is injected and then eliminated from the organism by its depurative organs.

It has then been thought to obtain a local or general radio-activity, relatively permanent and lasting for certain organs, for the blood and finally for the entire organism by substituting the use of insoluble radium salts in the place of soluble ones. It was certainly not illogical to suppose that particles of insoluble salts would remain, notwithstanding their extreme small size in the organs where they would be introduced and would find in the circulatory apparatus an enclosed system, difficult to go beyond on account of their inaptitude to dialysis. Besides, would not the permanent presence of the radium salts have for result the persistency of the induced radio-activity corresponding to the incessant production of the emanation coming from each particle of radium salt, the center of origin. Those suppositions have been confirmed by the experiments made by Dr. Dominici.

He first injected in the organism of man and of various animals, microscopical powdered sulphate of radium in suspension in a saline solution isotonic to the blood of man and of mammalia. This mixture was injected: 1. In the conjunctivo-vascular tissue of the ear and the groin of a rabbit and in the conjunctivo-vascular or muscular tissue of human limbs that were to be amputated for a surgical purpose. 2. In the tracheo-bronchial apparatus of various animals. 3. In the parenchyma of the spleen of rabbits. 4. In the marginal vein of the ear of adult rabbits. In a first series of experiments the persistency of the sulphate of radium in the living tissues has been observed in a lapse of time varying between 7 and 67 days after the injection. And it has been established that the principal zones of arrest were: 1. After the injection in the subcutaneous and striated muscular tissue of man or

animals, the *lymphatic interstices of those tissues*; 2. After the injection in the tracheo-bronchial apparatus, the *lymphatic interstices of the lungs and pleura*; 3. After injection in the spleen, the *splenic parenchyma*; 4. After injection in the venous system, the *bloody capillary meshes of the lungs and consecutively that of the kidneys, liver, spleen, nervous system and other organs*.

The persistency of the sulphate of radium in the spleen demonstrates that the arrest of this substance in the living tissues is not but the result of a single process of embolie, considering the disproportion existing between the large dimensions of the veins and the minute size of the radium salt. It is more likely that the radium becomes incarcerated partly in the macrophages of Metchnikoff and partly in the fixed elements of the connective tissues.

The first results were confirmed and exceeded by others, as the presence of the radium sulphate was detected one year and a half after the injection in the organs of a rabbit which had received $\frac{5}{100}$ th of milligramme in the marginal vein of the ear. In another instance, however, where $\frac{3}{100}$ th of milligramme was injected to another rabbit, thirteen months later was free of radium or had so little of it that it could not be detected with the usual methods.

If the above experiments show beyond doubt that arrest and long staying of sulphate of radium can take place in such organic territories as the *conjunctivo-vascular tissue, the striated muscular tissue, lung, liver, spleen, etc.*, it remained to be proven that *a certain quantity of this salt can also be mobilized in the general vascular apparatus and circulate in it as in a closed system*.

With the assistance of Prof. G. Petit, of Alfort, the following experiment was made: In the right jgular vein of an aged horse in good condition, one milligramme (10,000 microgrammes) of insoluble radium salt diluted in 250 c. c. of physiological serum, were injected. The operation was followed by a rather relatively abundant discharge of the salt, but this was temporary and it soon diminished, and after six months an examination of the blood revealed that a certain quantity of the sulphate of radium was

still remaining and circulating in the circulatory system of the horse. These experiments have then proved the possibility to obtain by the injection of an insoluble salt of radium, the permanent radio-activity of certain organs of the blood also, and therefore of the entire organism.

Indeed, the radium sulphate which is fixed in the tissues, the one which is mobilized in the vascular apparatus, represent as many centers, producers of emanations, which dissolved in the organic elements, confer on them an induced radio-activity. This radio-activity, local and general, is not accompanied with any disturbance in the health of the individuals that were injected; but, however, is not without effect on the physiology of the living tissues. Therefore it is then just to suppose that the radio-activity, produced by the doses of radium sulphate used, modifies the nutrition and the reactions of the living elements. And the researches made permit to believe that these injections suractivate hematopoiesis without producing plethora, excite the digestive functions without producing morbid hypersecretion and stimulate the nervous system without giving rise to spasmodic phenomena.

Recently introduced, this new method of using radium has already given valuable results in the human surgery of malignant tumors, epitheliomas, sarcomas, cheloid growths, etc.; it, is, however, very doubtful if it will ever find its application in veterinary surgery.

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FEVER OF MALTA—MEDITERRANEAN FEVER.—I may be allowed to trespass a little over my ordinary work and take advantage of an article from the *Presse Medicale* on this disease, to present the readers of the REVIEW some few statements of interest relating to its history and its mode of transmission, as points of comparative pathology which veterinarians may not be ignorant of.

Previous to 1863 English physicians had observed in the Island of Malta the existence of a fever with special characters

which Marston described under the name of *Mediterranean Remittent* or *Gastric Remittent Fever*. But what was its nature was not brought out until in 1887, when Bruce isolated from the splenic pulp of a cadaver a special microbe which he named *Micrococcus Melitensis*, with cultures of which he made subcutaneously inoculations on monkeys and reproduced a disease similar to that which was observed among men. In 1891 he obtained cultures of the same microbe with material obtained by puncture of the spleen during life. Six years later, Wright, by showing that the serum of sick individuals agglutinates the *Micrococcus Melitensis* created the sero-diagnosis of the disease and gave a true manner to recognize it with certainty, a manner which is to-day extensively put into practice.

In 1889 Birt and Lamb reported two cases of inoculation to men: one accidental and the other voluntary, of the *Micrococcus Melitensis* which were followed by typical cases of *Malta* fever. During these years it was found that if the disease was endemic in Malta, it existed in other countries. In 1871-72 it had been found in Sicilia and the southern part of Italy, where it received the name of Napolitan fever. Then at Gibraltar, where it was described as Rock fever. It is observed in Spain, at Cadiz, Malaga, Barcelona, in the north of Italy, in Sardinia, in Greece, in Turkey, at Smyrna, Jerusalem, at Port Said, Alexandria, in fact it exists in all the countries that form the basin of the Mediterranean Sea, hence its name.

But its geographical extent is still larger. It has been observed in the ports of the Red Sea, at Aden; it is very frequent in India, in Birmania. It is found in China, in the Philippines, the Fiji Islands, in various points of Africa, in South America, the West Indies, Cuba, the Mississippi Valley, in Tunisia, in Algeria, etc. If Malta has been the center, the Mediterranean shores was the nest of the infected regions from which it started. Numerous have been the observations recorded, and it seems to be the conclusions of scientists that Maltese fever is one of the most infectious diseases that threaten the population of those countries.

There have been two cases recorded from England, but they were in two soldiers returning from Malta.

Being a microbial disease, the question of its mode of transmission is of great importance.

First, the presence of the *M. melitensis* was looked for in the various excreta. It was as a rule, found in urine, and this fluid can be infected even in people who do not appear to be sick and who attend to their own business. To the point of view of the dissemination of the microbe, the special danger of these ambulatory forms is very great. In fecal matters, the researches have been generally negative. Likewise in saliva, sputa, perspiration, and yet inoculation with this last to monkeys have made their serum agglutinating. The micrococcus has been found in the milk of women, and the vaginal mucus in one case even after eighteen months of the infection.

The microbe exposed to the sun is killed rapidly. But it resists cold and dessication. It has been found living in the urine for seven weeks, on clothes soiled with dried urine for 78 days, in water for from 6 to 72 days and in earth from 7 to 91 days. Man is much more susceptible to the action of *M. melitensis* than animals and from the saying of bacteriologists, *after the bacilli of glanders and that of pest, it is one of the most dangerous pathogenic agent to handle.*

Very susceptible to it, but less than man, monkeys require large doses to be infected. The infection can take place by the digestive, ocular, nasal, cutaneous and subcutaneous ways. The disease that follows is similar to that of man. Rabbits and guinea pigs are more resisting. It is only by intra-venous, intra-peritoneal or even intra-cerebral inoculations that they can be killed. Horses, donkeys, dogs, seem in general rather exempt from infection, or at any rate they only exhibit very mild fever without any other symptom.

The contagiousity cannot be a question of doubt as proved by the epidemic that occurred on a boat the "Joshua Nicholson." There were on board 65 Maltese she goats. Five of them died during the journey, 32 among the others were found infected

with fever when they arrived in America. The crew was composed of 23 men who drank freely of the milk of goats. Eleven of them took the disease as was confirmed by the sero-diagnosis. The caprine origin is surabundantly demonstrated. Is she the constant agent of transmission and is the milk exclusively the carrier of the microbe? Probably no. At any rate, the microbe is expelled by the urine and this can also be an agent of transmission. The contagion taking place from one goat to another by ingestion, inhalation or cutaneous introduction. Attempts to transmit the disease with mosquitoes have remained negative.

In conclusion to this long résumé concerning Malta fever, let us glance at the recommendations as sanitary measures made as being applicable in countries where the disease may be as endemy or epidemic:

1. Obligatory declaration. 2. Guard the people by printed post bills of the danger of partaking of unboiled milk and of fresh cheese. 3. Watch the importation of goats from Malta so as to prevent the introduction of infected animals. 4. Organize the inspection of stables, of herds of animals and prevent the sale of the milk from animals recognized as diseased.

The Commission of Malta went as far as recommending the slaughter of all infected animals.

(As I am about sending this, I received the Report of the Bureau for 1908. To those who may desire more information on Maltese fever, I will refer them to that report.)

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CONCISE NOTES ON THE SURGERY OF THE TEATS IN COWS.—Traumatic accidents, atresia or obstruction of the galactophorous canals are cases that are of daily occurrence in country districts, and the proper surgical treatments that they require are too often neglected by veterinarians, either by carelessness or other reasons. The literature on this subject being so poor gen-

erally, and at least so incomplete in classical works. To remedy the evil and do practical good work, Mr. Hamoir, a Belgian veterinarian has written for the *Annales de Bruxelles*, a short series of articles where in two chapters he has treated the wounds of the teats and the obstructions of the lactiferous canals with their surgical indications.

Wounds of the teats, due to bites from dogs or tearings by barb-wire fences are of two kinds and vary in size, direction, depth and also in their severity, and under those conditions can be divided into superficial and deep. The first being a simple wound, scratching perhaps, more or less regular, but with a canal still perfect and uninjured, are generally of little importance, seldom requiring interference and for which the principal indication is to have the milking done in such a manner as to avoid pain as much as possible. Avoid the use of the catheter or milk tube, which is liable to complicate the injury with serious infection unnecessarily. Cocaine and anodyne applications will do good.

In the deep wounds, when the canal is lacerated, milk fistulas may be met with, and while they may sometimes close spontaneously (a rather rare occurrence, by the way), they need the surgeon's attention. If the wound is recent and clean, a twisted or an interrupted suture may be sufficient. The success in the cicatrization depending on the length of time elapsed since the injury has been received. Milking is then, of course, difficult, and the thorough sterilized milk siphon must be resorted to.

If the wound is old and fistulous, sutures of any kinds will seldom be of any advantage, especially if the animal is in full milking condition. If the animal is dry, the closing of the fistula can be obtained easily by the operation recommended by Mr. Hamoir, which he calls *Autoplasty by Sliding*. He proceeds as follows: The opening of the fistula is isolated by making four incisions through the skin, two parallel and lateral vertically, one centimeter apart and leaving the fistulous opening between them. Then, above and below the opening, two other incisions are made horizontally across, also parallel and uniting the two

first ones. In this manner, the fistulous opening is left in the centre of a small square piece of skin. This is dissected loose carefully and removed and then the canal of the fistula is made fresh by scraping with a bistoury. The flaps of skin which remain above and below the space where the fistulous opening was are then in their turn, dissected loose and by carefully pulling the upper one downward and the lower one upward they are brought in contact and secured with close stitches made with hairs or catgut. Layers of iodoformed collodion are put over the wound to reinforce it. Perfect union is the result.

Obstructions of the canals may occur at the entrance of the teat or in the course of the canal. In the first instance, we have the congenital imperforation, the presence of papillomatous growths or again calculus. For the congenital imperforation, puncture with the curette probe of Strebel is the indication.

For the atresia of the meatus due to growths, catheterism may do some good, but again the curette instrument of Strebel is the best, as with it the vegetations can be removed by pieces. Calculi may be found, single or in number. The author has extracted some with forceps. When the obstruction of the teat exists in the course of the canal, such as for instance a large nodosity located in one point of the canal, whatever may be its nature, the indications are to excise it with one of the various bistouries of Kuhn, Morier, Hug or Strebel. But if the nodosity or the induration is involving a large surface of the canal, while similar indications for using the various bistourie-cachés already mentioned—exist. There may be advantage if inflammatory symptoms are not present, to leave the obstruction alone rather than to run the chances of severe complications.

There is also another abnormal condition of the teat which may require surgical interference and that is when there exists a membrane closing the communication between the galactophorous sinus and the canal. This membrane has to be perforated with force by the introduction of an aseptized milk probe or, better yet, with the blade of a bistourie-caché which is moved in such a way as to make free incisions of the occluding membrane.

Those remarks and suggestions of Mr. Hamoir are very judicious and practicable and certainly his method of treatment for old milk fistulas deserves attention.

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LINGUATULOSIS.—This is one of the many new names that are found in the recent nomenclature of our day, and after searching for it in several medical and veterinary dictionaries, I failed to find it. At any rate as it indicates by its name, it refers to the pathological troubles that arise from the presence in the organism of the parasites of the order "Lingualata," class "Arachnoids" and gender "Pentastoma" of medical zoology. The "Pentastoma tenoides," which is the adult individual of the "Pentastoma Denticulatum" is found in parenchymatous organs, such as the liver and lungs, or again in the mesentery and lymphatic glands and blood vessels of sheep, goats, cattle, cats and other animals. Their principal location, however, is the anterior passages of the respiratory apparatus, the nasal cavities, where most frequently in dogs they give rise to that peculiar series of manifestations so well described by Cadeac in his encyclopedia under the name of Parasitic Coriza in dogs. The adult linguatula live in the nasal cavities of dogs, but their larval stage occurs in herbivorous animals. Ordinarily and perhaps in the majority of cases where the number of parasites is small, its evolution takes place without accidents, and yet the parasites are found specially in the lymphatic glands of the mesentery. But when the parasites are very numerous, in a massive infection so to speak, then very important lesions are found. And still, strange as it may appear, it will be principally and almost only in the works of zoology that description of the lesions that those massive infections may leave after death are referred to. It is, therefore, often as a surprise of autopsy that they are discovered. Prof. Moussu, who has had the opportunity of making post mortems of many cadavers has observed those lesions, and in a recent clinical lecture has called the attention of his students

to the peculiarities they presented in one animal. "Once you have seen them," he said, "you will never forget their aspect. They are essential to that disease. Therefore remember them well.

"Indeed, the liver has on both of its faces many small perforations, as if they were made with a punch, without local hemorrhage and about one millimeter in diameter. Overlooked by a superficial examination, they open into small canals of same size losing themselves in the depth of the organ. The diaphragm looks as if it had received numerous pricks of pins or needles, which have left small round little holes of the same dimensions as those of the liver. The lungs which are free from pneumonic or any other lesions, show also on their surfaces numerous small subpleural hemorrhagic spots, which by attentive examination show in the center a circular perforation of the pleura, entrance to a small canal running in the thickness of the lungs. If these subpleural spots are incised and teased out with care, a vermiform parasite, alive, white, with a wide head and thin caudal extremity is found, it is a larvæ of *Linguatula*. All the subpleural hemorrhages correspond to the entrance of one of these larvæ. In the hypertrophied mesenteric glands, some of which are hemorrhagic, the parasite can also be discovered. The infection in this subject was general."

The interest presented by the clinical description was increased from the fact that it was detected in an animal which had died with all the most manifest evidences of a very severe attack of *Strongylosis*, having been estimated at from 1,500 to 2,000 for one gramme of fecal matter examined. The animal had died absolutely in a cachectic condition. The examination of its intestines had shown, however, that it was free in great part of the worms and evidently the cause of death was the so extensively existing *Linguatulosis*.

It is certain that this disease is a serious affection. If the infection is small, it may pass off overlooked, but if it is sufficient to promote displacements through tissues and visceras of the organism and death may follow, it seems that its pathogeny

might find a very good place in veterinary works as well as in those written by zoologists.

It may be an exceptional disease, but veterinarians ought to know its manifestations.

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BIBLIOGRAPHY.—In this I take pleasure in bringing out again a name familiar to all veterinarians. It is to consider the continuation of a work that has been undertaken, and of which so many parts are known to many of our confrères. Prof. C. Cadeac, of the veterinary school of Lyons, has among the various divisions of his encyclopedia published *General Surgical Pathology of the domestic animals* in its broad sense, then that of the foot, that of the skin and blood and lymphatic vessels, that of the tendons, muscles and nerves and that of the articulations. Now the house of J. B. Bailliere et fils is presenting an addition to this already long list, the "*Surgical Pathology of the Digestive Apparatus*," in the same neat form as its predecessors, as a volume of over 500 pages with 186 illustrations. Prof. Cadeac examines first the mouth in solipeds, wounds, tumors, foreign bodies, etc.; the study of the diseases of the dental apparatus is very complete. After the solipeds, the same part of the apparatus is treated in bovines, in ruminants and in carnivora. The diseases of the salivary glands, pharynx, guttural pouches, œsophagus and abdomen follow in the same manner and same arrangement. The material from which the professor has taken to complete this work, is the result of the last ten years' observations. Each apparatus, each organ forms a special chapter, and the classification is like that of the previous volumes of the encyclopedia. There is no doubt that this addition will meet with a success similar to that of the other portions of the undertaking of Prof. Cadeac. It deserves it.

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THE PROCEEDINGS OF THE A. V. M. ASSOCIATION and the details of the grand meeting of 1909 have also been received.

Record of the forty-sixth annual convention of the National Veterinary Organization of the United States, which was held in Chicago from the 7th to the 10th of September, 1909, and edited by the Chairman of the Publication Committee, Dr. C. J. Marshall. This volume comes as a valuable acquisition to American veterinary literature and history. Like its predecessors, it contains the full description of all the events that took place in those days of September. It relates the work of the various committees; it gives a handsome account of the financial standing; it fills numerous pages for reports and original papers and discussions that followed, and it gives a good description of the work done at the clinics connected as one of the events of the meeting. The sociable part and list of members are also mentioned. As a whole and in its general appearance this volume, of course, must resemble those that were issued before it, but the reading of the original works which occupy more than one-third of the book must be looked into by every one, as it shows that veterinarians of America are workers, and that they are making for themselves among scientists and searchers of the world at large, an important place.

It has been our duty for several years back to watch and record the work done; it has always been our great satisfaction and pride to note the progress that has been made. Great every year, greater every following one, those meetings are the field from which these grand records of proceedings are made. We wonder what San Francisco can do this year to be greater than Chicago, Philadelphia and all those before. Veterinarians that have not been at Chicago will do well to hurry and secure a copy of the last publication from Dr. Marshall.

Received also No. 2 of Vol. XV. of the *Archives des Sciences Biologiques*, published at St. Petersburg, containing a contribution of the study of the methods used in the preparation of vaccines by Dr. S. K. Dzeragowski; a record of the antirabic vaccinations at Rostoff by Dr. M. Abramoff; a contribution to the study of the arterial circulation of the pancreas, by A. V. Popova, and a contribution upon the theory of Phagocytosis by Dr. G. Sawtchenko.

From the Bureau of Animal Industry, Circular 160, where from the pen of Chief A. D. Melvin, M.D.C., the work of the Bureau for the suppression of the lip and leg ulcerations of sheep is presented in company with the excellent work of John R. Mohler, V.M.D., the Chief of the Pathological Division, where the history of the disease is related, the characters, symptoms and lesions well illustrated with valuable photos, the cause of the disease and mode of introduction of the microbe that gives rise to it, the economic importance of the disease, its transmissibility and treatment; everything, indeed, receives the proper attention and must be read to be appreciated.

In Circular 159, Dr. Maurice C. Hall, of the Zoological Division of the Bureau, has related some important facts in the life and history of the Gid parasite and their bearings on the prevention of the disease.

No. 2 of Vol. 3 of *Veterinary Notes* from Parke, Davis & Co. has brought me the likeness of Dr. Tait Butler, a good souvenir of a good worker in the profession.

A. L.

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AMERICAN VETERINARY SPECIAL.

In our June issue we reviewed briefly the situation of "the trip to the Coast," predicting the popularity of the "American Veterinary Special," referring to the earlier section of this train, suggested by Dr. Merillat as meeting the needs of those who might desire to take the trip through the "Yellowstone" going, which requires a week's time (hence the necessity of starting a week earlier), while perhaps the majority, who would find it necessary to make the trip as expeditiously as possible, would leave on the second section August 30th. We also took the liberty to suggest that it might be possible to arrange with the railroads for stop-over privileges returning, to meet a third group of attendants who delight in spending a week with their families in side trips after the convention is over. Right after we went to press we received another communication from Secretary

Lyman (which with some later revisions and additions appears in this number), that removes a great deal of conjecture.

In reading the communication referred to on page 525, you will see that stop-over privileges are granted until October 31st, so that the Yellowstone Park or *any* side trip that appeals to you can be made returning, on your tickets purchased for the "American Veterinary Special" going. That alone tends to increase the popularity of that train, but when you have read some of the details of the trip going, as portrayed by Secretary Lyman, you will decide that it is the *only* way to go and get the full benefit of the trip, coupled with the society of your fellow members; and just as soon as you have reached that decision, communicate it to Dr. Lyman *at once*, as he must have a hundred names to transmit to the transportation committee in order that they may get the privileges and the rates that are offered for that train. Do not be confused by the statement in which he says night of August 30th (leaving hour to be announced next month), and the itinerary published in the June REVIEW, which says August 31st, 12-01 a. m., which *may* be a little misleading, unless you give it a moment's thought. It is simply midnight of August 30th, and one minute later. Parties leaving with the "special" from Chicago are advised to arrive at Chicago early in the evening, as it may be possible to arrange to leave in the middle of the evening of August 30th instead of one minute after midnight, as 12.01 August 31st signifies. A careful perusal of Dr. Lyman's letter will also enlighten those further west, and not making Chicago their starting point, as to how to arrange to go by that train and get the benefit of the special rate. Dr. Lyman's address from now until convention time is P. O. Box 901, Hartford, Conn.

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RETROSPECTION.

In the midst of our interest and enthusiasm in anticipation of the coming meeting of the A. V. M. A. at San Francisco, let us for a moment look backward into the vista of the past

and recall a meeting of the *then* U. S. V. M. A. at the veterinary school of the University of Pennsylvania in 1894. As a frontispiece to this number, we have reproduced one of the best photographs of a convention group that it has ever been our good fortune to see. And, even though we were obliged to reduce it one-half in order to make it conform to our page, we feel sure that many of our readers will be able to recognize the faces of old friends, most of whom are still with us, and many that have crossed the great divide. Most of the faces are known to us and are dear to us among both those that are living and those that are dead; and, with the kind assistance of Drs. Hoskins, Harger, Marshall and Gill, we have been able to place the names of most of them at the bottom of the picture, but there are a few we have been unable to recall. We were prompted to reproduce this picture for our readers because of the fact that it contains the portraits of great men, some of whom have ceased to take an active part in our national conventions because of their absence from our country, and others because they have been called to their Maker. Among those in the first group are Liautard and Salmon, both hale and strong, but in other lands. The distinction of these two great veterinarians and the great work they have both done for the veterinary profession in America is too well known to need repetition here. They are both past presidents of the U. S. V. M. A. Dr. Liautard served from 1875 to 1877, and again from 1886 to 1887, and Dr. Salmon from 1897 to 1898.

In the second group, or those that have been called to their Maker, we find in this picture Drs. Leonard Pearson, A. W. Clement, John Faust, D. J. Dixon, W. E. B. Miller, and perhaps some others whose faces we do not recall or whose death we do not know of. Three of these last, Drs. Miller, Clement and Pearson, and in the order named, served the national organization as its president in the years 1883 to 1885, 1898 to 1899, 1899 to 1900, respectively. We are impressed with the strikingly characteristic pose in this picture of Dr. Leonard Pearson, who, prominent in the profession even at that time (although

one of its young members), afterward developed into one of its strongest and most able leaders, and at the time of his death had attained international fame and had contributed more to the veterinary profession than can ever be estimated. There are also several past presidents in the picture who are active members of the organization at the present time. For example, Robertson, Hoskins, Williams and Butler. Altogether, we believe this picture of a group of veterinarians who were in attendance at the national convention in Philadelphia sixteen years ago is peculiarly valuable, and we are glad to be able to give it to our readers that it may become part of a volume that they can preserve in their libraries indefinitely.

CHANCELLOR HENRY MITCHELL MACCRACKEN, D.D., LL.D., of New York University, was the recipient on Commencement Day of a beautifully engrossed parchment, expressive of the good wishes of the several schools of the university, on his retirement, which followed the conclusion of the commencement exercises. The heading consisted of his name and degrees in gold and violet, (violet being the university color). Following that was the prettily engrossed inscription: "The members of the several faculties of New York University desire to tender you an expression of appreciation of the important services rendered by you as chancellor of the university. We wish, further, to express our sympathetic recognition of the years of courageous and arduous labor which you have devoted to New York University and of the substantial achievements which have crowned your efforts. We also sincerely hope that you may enjoy for many years health, prosperity and a well-earned rest. "New York University, Commencement Day, 1910."

About a hundred signatures of representatives of the faculties of the several schools were appended.

DR. E. A. RICHARDSON, of Goldfield, Ia., wrote under date of April 4th: "To-day I realized with a start that I had not renewed my subscription to the REVIEW, and as I do not want to miss the April number, please forward this month's without fail, as there might be one article worth the year's subscription."

DR. V. J. AYRES has recently located in Sterling, Col.

ORIGINAL ARTICLES.

EXPERIMENTAL INVESTIGATIONS AND CLINICAL FINDINGS CONCERNING THE APPLICABILITY OF NOVOCAIN FOR THE PURPOSES OF VETERINARY MEDICINE—INAUGURAL DISSERTATION.*

BY ANDREAS FEHSE.

(*Abstract.*)

After a brief summary of the favorable results of Novocain as an anæsthetic agent in the human subject, the author proceeds to give an account of his experiments with Novocain in domestic animals, in regard to its toxicity as well as anæsthetic effect. Up to the present time (1906), no experiments with this drug in veterinary medicine had been published, and it is probable that none had been made. The author's investigations were carried out in part in the clinic for small domestic animals, of the Berlin Veterinary High School, under the direction of Professor Regenhogen.

The following plan served as a basis for the investigations:

(a) Intoxication experiments upon frogs. Subcutaneous application.

(b) Intoxication experiments upon guinea pigs. Subcutaneous application.

(c) Intoxication experiments upon dogs. Subcutaneous application.

*Experimental Investigations and Clinical Discoveries Concerning the Use of Novocain in Veterinary Practice, presented at the meeting of Veterinary-Medical Doctors, of the United Medical Faculties of the Grossherzoglich-Hessischen Ludwigs-Universität zu Giessen, from experiments made at the Clinic of Small Domestic Animals of the Königl. Vet. High School, Berlin, during 1906 and 1907.

(d) Endermatic injections, for the determination of regional anæsthesia in dogs, with and without the addition of Suprarenin.

(e) Anæsthetizing experiments upon the eyes of: (1) dogs; (2) horses.

(f) Experiments concerning the practical applicability of Novocain as a local anæsthetic in animals, with and without the addition of Suprarenin.

(g) Diagnostic injections in horses.

(h) Experiments concerning the durability of Novocain solutions.

As the first three of these studies are of minor importance to practising veterinarians, we will not include them in this abstract, but proceed with such portions as will prove of greater interest.

Endermatic injections for the determination of the regional anæsthesia, with and without addition of Suprarenin.

The influence of Novocain upon the tissues was studied with the aid of the endermatic wheals in a dog, and the effect of Novocain was compared with a cocain solution of the same concentration. In another series of experiments, the author examined the anæsthetic action of Novocain in combination with Suprarenin. For this purpose he employed 0.1 gramme Novocain and 0.00045 gramme Suprarenin boricum.

The quantity of the injected solution amounted to 1 c. cm. respectively, in all the cases.

CONCENTRATION OF THE SOLUTION.	NOVOCAIN.	COCAIN.	NOVOCAIN SUPRA- RENIN.
0.25 per cent.	Immediate diminu- tion of sensibility. Anesthesia about 10 minutes.	Immediate diminu- tion of sensibility. Duration of anes- thesia about 12 minutes.	Immediate diminu- tion of sensibility. Duration of anes- thesia about 40 minutes.
0.5 per cent.	Immediate onset of anesthesia. Dura- tion about 20 min- utes.	Immediate onset of anesthesia. Dura- tion about 25 min- utes.	Immediate onset of anesthesia. Dura- tion about 80 min- utes.
1.10 per cent.	Immediate onset of anesthesia. Dura- tion about 60 min- utes.	Immediate onset of anesthesia. Dura- tion about 70 min- utes.	Immediate onset of anesthesia. Dura- tion about 2 hours.

From these experiments, results in the first place that Novocain is a local anæsthetic. The vessels are not influenced in any

way by Novocain, for the author was never enabled to note the occurrence of hyperemia or anemia. No damage of the tissues occurred, as the wheals invariably disappeared without leaving a trace of their presence. With special reference to the anæsthetic action of Novocain it seems to be hardly inferior to that of cocain, according to the above experiments. Concerning the combination of Suprarenin with Novocain these experiments show that Suprarenin induces an essential prolongation of the Novocain anæsthesia. Hence, Novocain both with and without the addition of Suprarenin, is found to be an efficient local anæsthetic.

Experiments Concerning the Practical Use of Novocain as a Local Anæsthetic Agent.—The author has repeatedly had occasion to study the anæsthetizing effect of Novocain in operations, performed in the clinic for small domestic animals, of the Veterinary High School in Berlin. The following results were obtained in this connection:

Experiment No. 1.—Dog, male, about four years old, with a neoplasm the size of a hen's egg in the lumbar region of the back. This was injected in its circumference with 4 c. cm. of a 1 per cent. Novocain solution. After seven minutes, the neoplasm was enucleated, and the wound closed with eight sutures. The operation, which lasted about ten minutes, was performed under complete anæsthesia. Healing by first intention.

Experiment No. 2.—Dog, male, about three years old, contused wound of last three caudal vertebræ. The injured extremity of the tail was amputated after preliminary injection of 4 c. cm. of a 1 per cent. Novocain solution around the field of operation. Six minutes after injection the operation was performed under complete anæsthesia.

Experiment No. 3.—Amputation of second toe of left hind foot in a dog, after injection of 4 c. cm. of a 1 per cent. solution at the root of the toe. The operation was performed seven minutes later without any evidence of pain.

Experiment No. 4.—St. Bernard, ten years old, male. Neoplasm the size of a hen's egg in the middle of the left scapular region. Subcutaneous injection of about 7 c. cm. of a 1 per cent.

Novocain solution around the neoplasm. The operation lasted about fifteen minutes and was performed eight minutes after the injection under complete anæsthesia. The wound was sutured and healed by first intention.

Experiment No. 5.—Collie, male, three years old. Neoplasm size of hen's egg on external side of right hind leg. Injection of 8 c. cm. of 1 per cent. Novocain solution. At the end of seven minutes complete anæsthesia which lasted during operation.

Experiment No. 6.—St. Bernard, male, six months old. Umbilical hernia, size of hazel nut. Injection of 2 c. cm. of a 2 per cent. Novocain solution five minutes later; the operation was performed without pain. Healing by first intention.

Experiment No. 7.—Retriever, male, six months old. Amputation of two claws, with injection of 2 c. cm. of a 2 per cent. Novocain solution on each side. After six minutes, there was a sufficient anæsthesia for the operation.

Experiment No. 8.—Dog, female, twelve years old, with sarcoma the size of a fist at the interior surface of the left hind leg. The operation was performed under good anæsthesia six minutes after the injection of 4 c. cm. of a 2 per cent. Novocain solution at the floor of the neoplasm.

Experiment No. 9.—Collie, female, six years old, with a neoplasm the size of a walnut in the left frontal region. Injection of 3 c. cm. of a 2 per cent. Novocain solution. Painless performance of the operation five minutes later.

Experiment No. 10.—Dog, female, eleven months old, with umbilical hernia, size of a pigeon's egg. Injection of a 2 per cent. Novocain solution. After six minutes good anæsthesia during the operation.

Experiment No. 11.—The same operation was performed with equally good results in a puppy of ten weeks, using a 2 per cent. Novocain solution.

Experiment No. 12.—Pomeranian, female, six years old, mammary carcinoma, the size of a pigeon's egg. Injection of 2 c. cm. of the 2 per cent. Novocain solution. During the per-

formance of the operation, five minutes later, the patient gave evidence of slight pain.

In the following operations upon dogs a 1 per cent. Novocain solution was employed with addition of Suprarenin.

Experiment No. 13.—Poodle dog, male, ten years old. Atheroma on back, size of hen's egg. Injection of 4 c. cm. of the above-named solution. The dog was operated upon five minutes later, standing up; the operation proved painless, and the wound healed by first intention.

Experiment No. 14.—Dog, male, two years old. Periostitis, ossificans of second and third phalanx of third toe of left hind foot. Injection of 4 c. cm. of the solution, performance of operation five minutes later, under very good anæsthesia. Healing by first intention.

Experiment No. 15.—Dog, male, seven years old. Neoplasm size of walnut at the prepuce. Injection of 5 c. cm. of the above solution. Five minutes later there was complete anæsthesia. Besides the above-mentioned operations, numerous others were performed.

Anæsthetizing Experiments Upon the Eyes of Horses and Dogs.—(a) Dogs. These experiments were performed in part upon laboratory dogs, and in part upon dogs which had been admitted to the clinic for small domestic animals, on account of eye trouble. The aqueous Novocain solution that served for the experiment was 5 per cent. and 10 per cent.

Novocain in 5 Per Cent. Solution.—Experiment No. 1.—Bull dog, male, age three months, was admitted to clinic on account of a new formation at the third lid of the left eye. About fifteen drops of the Novocain solution were instilled into the affected eye. At the end of four minutes, the third lid was excised; the dog gave evidence of pain.

Experiment No. 2.—Small dog with severe follicular conjunctivitis of left eye; instillation of about fifteen drops of the Novocain solution; six minutes later excision of nictitating membrane. Operation was painless.

Experiment No. 3.—Small pomeranian, removal of nictitating membrane of right eye, seven minutes after instillation of Novocain solution. The dog gave evidence of very slight pain only.

Experiment No. 4.—Terrier; the right eye was anæsthetized, and about thirteen minutes later the nictitating membrane was removed. Operation slightly painful.

Experiment No. 5.—Excision of third lid, six minutes after the right eye of a dog had been anæsthetized. Operation completely painless.

Experiment No. 6.—Extirpation of nictitating membrane of left eye in the same dog on the next following day, 33 minutes after anæsthetizing. Operation entirely painless.

Novocain in 10 Per Cent. Solution.—Experiment No. 1.—Collie dog; installation of about fifteen drops of this solution into the left eye. Three minutes later the third lid was removed, the dog giving evidence of severe pain.

Experiment No. 2.—Excision of third lid of right eye in the same dog on the following day, five minutes after anæsthetizing with this solution. The dog gave evidence of very slight pain during the operation.

Experiment No. 3.—This solution having been allowed to act for about seven minutes on the left eye of a Pomeranian, the conjunctiva and third lid were compressed with forceps; this caused no utterance of pain. After about fifty minutes the third lid was removed, without the dog expressing any pain.

Experiment No. 4.—Extirpation of nictitating membrane of left eye, fifteen minutes after anæsthetizing; there was some slight sensitiveness to pain.

Experiment No. 5.—Both eyes of a dog were anæsthetized, and nine minutes later the removal of the nictitating membranes was accomplished entirely without pain.

Experiment No. 6.—Application of Novocain in powder form to both eyes of a rough terrier, at intervals of three days. There immediately followed a marked congestion of the scleral vessels, but this subsided after about one hour. The accommodation

was not interfered with in any way. Not the slightest pathological change in the cornea could be found in the course of observation during the next three days.

1. *Novocain in 5 Per Cent. Solution in Horses*.—Horse No. 1.—The left eye was rendered anæsthetic with this solution. No anæsthesia was apparent after three minutes, on pressure with forceps upon the conjunctiva and third lid. After two more minutes, anæsthesia was present to a slight degree. A little more solution was instilled, and after about five minutes the third lid was removed, the horse giving evidence of slight pain.

Horse No. 2.—Slight anæsthesia was perceptible after five minutes. Extirpation of the nictitating membrane of the left eye after about five minutes more; the horse experienced but little pain.

Horse No. 3.—Removal of third lid ten minutes after the left eye had been anæsthetized. Slight evidence of pain on the part of the horse.

2. *Novocain in 10 Per Cent. Solution*.—Horse No. 1.—Removal of third lid of right eye, ten minutes after anæsthetizing. The operation proved painless.

Horse No. 2.—Excision of nictitating membrane of right eye nine minutes after anæsthetizing. The horse gave no evidence at all of pain.

Horse No. 3.—Extirpation of third lid of right eye thirty minutes after anæsthetizing. The operation proved painless.

The above experiments served to show that Novocain is capable of producing anæsthesia in the eyes of animals. While the 5 per cent. solution sometimes fails to cause a complete anæsthesia, the ten per cent. solution is to be very highly recommended. In the first place, the effect follows promptly in about seven to ten minutes; and secondly, the author has never been able to note any symptoms of intoxication or changes in the eye, such as disturbance of accommodation or inflammatory manifestations of the cornea and palpebral conjunctiva. Finally, he did not find in any instance that either the dogs or the horses gave

evidence after the instillation of a painful or tickling sensation by rubbing of the eyes.

Diagnostic Injections in Horses.—These experiments served to show that a good result may be obtained by doses of 0.5 to 0.6 gramme of Novocain, when injected into horses for diagnostic purposes. The effect follows after about eight to twenty-five minutes, without any side manifestations, and lasts for about one hour.

Experiment Injections.—Bay gelding, eight years old, rather marked lameness of left forefoot for a few days past. Treatment not yet instituted. Diagnosis: Bilateral ossification of cartilages of hoofs. Injection of 8 c. cm. of a 3 per cent. Novocain solution into each volar nerve. Twelve minutes later the animal was made to canter; the lameness had about subsided. Four minutes afterward the lameness had entirely disappeared and did not return again until three-quarters of an hour later.

Brown mare, five years old, lame in left forefoot for past twenty-four hours. Diagnosis: Distortion of hock and pastern joint. Injection of 10 c. cm. of a 3 per cent. Novocain solution into each volar nerve. Nine minutes later the lameness had disappeared.

Brown mare, about seven years of age. Very pronounced lameness of left forefoot for three days past. Treatment not yet instituted. Diagnosis: Arthritis and peri-arthritis of pastern joint. Injection into each volar nerve of 10 c. cm. Novocain in 3 per cent. solution with the addition of Suprarenin. Novocain, 0.1 gramme; Suprarenin, 0.00045 gramme. Ten minutes later the horse was made to canter; the lameness had not entirely disappeared, but in five minutes afterwards the horse did not show any lameness whatever.

Brown gelding, six years old. Slight lameness of right forefoot of long standing. Diagnosis: Ossification of cartilage of hoof. Injection of 10 c. cm. of a 3 per cent. Novocain solution, with addition of Suprarenin into volar nerve on each side. Lameness had disappeared at end of ten minutes and did not return until an hour and a quarter afterward.

Black gelding, eight years old. Very pronounced lameness of right forefoot for two days past. Diagnosis: Distortion of hock and pastern joint. Injection of 10 c. cm. of a 3 per cent. Novocain solution into volar nerve on each side. Ten minutes later the lameness had entirely disappeared.

Experiments Concerning Durability of the Solutions.—1. A newly prepared Novocain solution, 10 per cent. was boiled seven times in a test tube, and a guinea pig weighing 240 grammes received of this a subcutaneous injection of 0.168 gramme Novocaine—0.7 gramme per kilo of body-weight. The guinea pig died about three hours later under the typical symptoms of intoxication.

2. A Novocaine solution, 2 per cent. two months old, was boiled eight times, and 5 c. cm. were injected into a dog for the extirpation of a tumor at the anus. The dog gave no evidence of pain during the operation.

3. A female pointer, seven years of age, presented a neoplasm the size of a walnut near the right nipple. Injection of 4 c. cm. of a 1 per cent. Novocain solution three months old. The operation was performed twenty minutes later under good anæsthesia.

4. Pomeranian, male, twelve years old. Pedunculated neoplasm the size of a goose egg at the plantar side of the right carpal joint. Injection of 6 c. cm. of a 2 per cent. Novocain solution three months old for local anæsthesia. Painless operation ten minutes later.

5. Dog four years of age, with an ulcer at the tip of the tail. Local anæsthesia with a 2 per cent. Novocain solution four months old. Amputation of last three caudal vertebræ; operation painless. Healing by first intention.

6. Poodle, male, seven years old. Neoplasm, size of walnut, on the right cheek. Local anæsthesia with a 2 per cent. Novocain solution five and a half months old. Operation proved painless.

The Novocain solutions which served for the above experiments were kept in white flasks, exposed to the action of light. Until about the end of the fifth month the solutions remained

perfectly clear and white. A slight yellowish discoloration did not occur until the beginning of the sixth month, but this did not interfere with the anæsthetic effect as shown by Experiment No. 6. Although some of the solutions were boiled several times, a difference in their action as compared to that of a newly prepared solution could not be demonstrated.

Upon the basis of his experiments, the author defines Novocain as a very efficient local anæsthetic, and a very valuable contribution to the veterinary pharmacopeia; he gives expression to the hope that Novocain will gain the position its value entitles it to in veterinary practice.

SUMMARY.

Novocain is a rapid and reliable anæsthetic, which produces absolutely no irritative phenomena in animal tissue, even when employed in concentrated solution. For operations, the subcutaneous or cutaneous application of a 1 to 2 per cent. aqueous solution is sufficient. Novocain exerts no deleterious effect upon tissue repair. In eye operations a 5 to 10 per cent. Novocain solution, instilled into the conjunctival sac, produces within a relatively short time an anæsthesia entirely sufficient for operative procedures. A harmful influence upon the function of the eye is not apparent. Even when brought in substance upon the cornea, Novocain does not give rise to local pathological changes other than an episcleral vascular congestion.

Aqueous Novocain solutions can be kept for a long time, without losing any of their efficiency. It has a relatively low degree of toxicity; large amounts may be injected, and hence large body segments can be anæsthetized without untoward results. Experiments show cocain to be about five times more poisonous than Novocain. Subcutaneous injections of 0.5 to 0.6 gramme of Novocain are entirely sufficient for diagnostic purposes, in lameness of horses, a toxic action was not observed in any instance. The anæsthetic action of Novocain may be very considerably increased by the addition of Suprarenin.

APHTHOUS FEVER OR FOOT-AND-MOUTH DISEASE.*

BY HARRY E. STATES, V.M.D.

Because of the widespread interest, due to the recent outbreak of this troublesome, infectious disease in Wayne County, your good secretary has assigned this subject to me in such a way that it was impossible for me, as a member of the Committee on Infectious Diseases, to do otherwise than attempt to bring something before you. It was my good fortune, with a number of our members, to see a number of cases in Livonia township recently. With this knowledge and some help from recent publications by Drs. Melvin, Pearson and others, I hope to be able to review the important points of the disease as to the history, cause, symptoms, diagnosis, prevention, quarantine and eradication.

Briefly, the history of the recent outbreak in Michigan is as follows: Sometime in October, 1908, a herd of young feeders, which later developed foot and mouth disease, was purchased in the stock yards in Detroit, and taken to a farm in Livonia township. By the sale and exchange, and the moving of these cattle over the same roads, the hauling of water, from what proved later to be the infected farm, a number of herds in the vicinity became infected. The disease was suspected by local veterinarians, and later confirmed by experienced government veterinary inspectors. Strict quarantine of infected herds was enforced. The cattle were condemned, appraised, killed and buried and the premises thoroughly disinfected, and the disease is stamped out, all having been accomplished in a thorough business-like manner by the Bureau of Animal Industry with its efficient inspectors, working in conjunction with the State Live Stock Commission.

* Read at the Twenty-seventh Annual Meeting of the Michigan Veterinary Medical Association at Lansing, Mich., February 3, 1909.

Condemned animals were appraised at full value. Two-thirds of the appraisment is paid by the Federal Government and one-third by the State. The cost of burial, of disinfection, and of damages to forage and stables through necessary cleaning and disinfection are shared in a like manner.

Aphthous Fever, or Foot-and-Mouth Disease, is an acute infectious and highly contagious disease affecting cloven-footed animals. It occurs most frequently among cattle, sheep, goats and swine. It has also, in some rare instances, occurred in horses and some observations denote that dogs, cats and even poultry may be affected by it. The large herbivora, as found in zoological gardens—camels, giraffes, deer of all kinds and elephants—are susceptible. The disease is also transmissible to man; such transmission results most frequently in children and from the use of the raw milk of diseased cows. Aphthous fever in man is usually not a dangerous malady, but it is recorded that in some outbreaks there have been many deaths.

The disease is an old one, but its most extensive destructive outbreaks have occurred during the past two hundred years. The several invasions of European herds and flocks by foot-and-mouth disease have come from the East towards the West, have been very extensive covering great regions, involving several countries, and have sometimes persisted many years. The invasion of England, which began about the beginning of the second third of the past century, continued nearly fifty years. The German invasion, which began in 1888, continued seventeen years. In 1897-1899 more than 1,000,000 animals were attacked in Holland. There was a small outbreak of foot-and-mouth disease in Western Massachusetts and in Eastern New York in 1870, and an outbreak in New England, centered around Boston, in 1902-3. The latter outbreak involved 244 herds in four states and necessitated the destruction of 4,712 animals.

The rate of mortality from foot-and-mouth disease is low, but the destrucion of values and the losses resulting from it are high. It was estimated in 1875 by Fleming, the great English authority, that the losses to the farmers in England from foot-

and-mouth disease then amounted, upon a very conservative basis of appraisal, to 13,000,000 pounds sterling (\$65,000,000). The loss upon each herd attacked by this disease amounts to from 20 per cent. to 50 per cent. of its value. The consideration of this fact in connection with the knowledge that foot-and-mouth disease spreads with such remarkable facility that, if uncontrolled by public measures, it may attack from 25 to 75 per cent. of the herds of a district will give an idea as to the potentialities for harm that accompany outbreaks of this disease, and will explain why farmers in countries that have passed through visitations of this plague dread it more than any other scourge of cattle.

In 1871, about 700,000 cattle were attacked by foot-and-mouth disease in England. The average loss on each bovine animal attacked was three pounds, making the total loss about \$10,000,000. An outbreak of about the same dimensions occurred the same year in France; this outbreak was repressed, but a re-infection began in 1893 and continued to increase and spread until 1900, after which it was fought back until 1906, when there was again a considerable increase. During twelve years, up to 1905, 16,000,000 animals were attacked by foot-and-mouth disease in Germany. The losses to German farmers from this cause amounted to well about \$100,000,000, and the cost to the government of measures applied to control the disease was about \$30,000,000. During the past few years, most of the countries of continental Europe, excepting Scandinavia, have had to keep up a constant, difficult and expensive warfare against foot-and-mouth disease.

In a district or a country where foot-and-mouth disease exists there prevails, and must continue until the disease is eradicated, a state of unrest and uncertainty with relation to all operations affecting live stock. No one can foresee when his herd will be attacked, every animal brought to premises where the disease has existed is liable to develop the disease; any purchase, not only of animals of susceptible species, but of hay, straw, manure or even grain, if in bags that may have been on infected premises, may introduce the contagion. The combined unrest,

annoyance and loss that result under such circumstances destroy all security and profit and lead to a great restriction in cattle trade and cattle keeping. Instances are numerous in other countries, in which owners of pure bred herds have discontinued breeding and have sold their cattle, as a result of loss and discouragement from this disease.

So long as foot-and-mouth disease prevails in this country, the permanence of our export trade in live cattle and sheep is in jeopardy. Experience shows that English restrictions on such shipments will be continued until the last trace of disease has been eradicated. These restrictions result from the fear of English farmers that their country may become reinfected and that the memorable and terrible losses they have suffered from the ravages of this disease may be repeated. Great Britain has been free from foot-and-mouth disease since 1901.

The cause of Aphthous Fever has not yet been isolated, but the properties of the virus of the disease have been studied. It is known that this virus may retain its vitality and virulence in a stable or a manure pile for as long as six months, that it will withstand freezing, and that it may be destroyed by disinfectants. Dark, damp places are most suitable for the prolongation of its life. The virus appears also to live on and in the bodies of recovered animals for several months, so that such animals are a source of danger if they are permitted to come into direct or even indirect contact with susceptible animals. Fleming reports a case wherein the virus of aphthous fever retained its virulence for four months in a feeding trough exposed all of this time to the weather. He cites another instance wherein the virus persisted five months in a hay rack that had been used by diseased cattle, and the infection was carried in this hay rack to cattle on another farm to which it was taken.

The virus of Aphthous Fever spreads more easily than that of any other known disease of cattle; it is carried most readily and most surely by affected animals, or by animals that have come from infected herds or premises. It may also be carried, and in numerous authenticated instances has been shown to have

been carried in hay, straw, grain, manure, stable utensils, blankets, bags, etc., from premises where diseased animals have been. It is also carried upon the hands, boots, or clothing of persons who have been on infected premises. Small animals may transport the contagion just in the way it is carried by inanimate objects, so that it is necessary to guard against the spread of infection by dogs, cats, poultry and pigeons. There are numerous examples of the carriage of infection long distances wherein all means of communication excepting by birds have been excluded. Bolz reports in 1904 a case wherein the virus persisted in a manure pile for six months and caused a new outbreak when cows came in contact with the scattered manure. In the recent outbreak in Pennsylvania some cows became infected while walking across a railroad unloading-platform over which some exposed cattle that later developed foot-and-mouth disease had passed some hours before; these cows were later placed among other cattle and have infected herds.

Calf buyers and cattle dealers who go from farm to farm and from herd to herd have often carried infection, presumably upon their boots or clothing. Such persons may unknowingly come in contact with the disease in its earlier stages or in its later stages and may fail to recognize that the animal is sick and that they are exposed and then may carry the seeds of disease to other premises. During outbreaks of foot-and-mouth disease, visits of perambulating cattle dealers, of castrators and of careless cow doctors are particularly dangerous. There is, however, no danger from the visits of veterinarians who observe certain precautions.

Cattle hides, calf and sheep skins, wool, milk and the carcasses of slaughtered diseased or exposed animals may convey contagion. Infested stock yards and stock cars and the manure they contain are sources of disease.

The virus may be taken up by exposed animals through the digestive or respiratory tract, or infection may result from inoculation upon the skin or into the blood stream.

The period of incubation, or the interval between exposure and the occurrence of the first symptoms, is usually from two to five days. This time may, in exceptional cases, be as short as twenty-four hours and it may be as long as twelve days.

The symptoms develop in a rather regular manner and so it is possible to divide the disease into stages.

The first stage begins with more or less dullness and inappetence and is accompanied by fever. The temperature may not be more than 103 degrees F., or it may be as high as 105 degrees to 107 degrees F. This stage is characterized, at first, by dryness and warmth of the muzzle, by a dry, hot mouth, evidence of discomfort of the mouth is shown by slow, careful chewing, by some awkwardness in grasping food, and by grinding the teeth. If an effort is made to examine the mouth it is held tightly closed. Very soon the mouth becomes unduly moist from the increased secretion of both mucus and saliva. As the tenderness and pain increase, the animal works the tongue and cheeks and makes a suckling, clicking or smacking sound. There is considerable accumulation of saliva in the mouth, some collection of froth about the lips and strings of sticky saliva may descend from the mouth. This condition is more striking at a somewhat later period of the disease. It soon becomes apparent that it is painful for the animal to take up food with the tongue and lips and if hard, solid food is taken, as half of an ear of corn, the head is held high and to one or the other side, so that the corn will gravitate to a less sore place in the back of the mouth where it may be crushed and then swallowed. Not infrequently, such a mouthful will be dropped, after the pain it causes is experienced. Sometimes during this stage or, perhaps, not until a day or two later, there is evidence of soreness of the feet, as shown by a tendency to shift the weight from one foot to another, by a quick tripping or jerking motion or by an inclination to lie down more than is usual. The first stage lasts one, two or three days.

The second stage, or that of eruption, is characterized by the occurrence of vesicles, appearing as water blisters, in and about the mouth, about the feet and upon the teats and udder. For the

mouth eruptions, the favorite seats are the following: the ends and margin of the pad, the tip, borders and top of the tongue, the front and face of the pad, the inside of the upper lip, the inside of the lower lip, the borders of the lips, the muzzle, the lower surface and the frænum of the tongue, the gum and the lower jaw, the inside of the cheeks, and the roof of the mouth. Vesicles may appear about the nostrils.

Vesicles or blisters appear upon the feet between the hoofs, especially at the front of the cleft; about the coronary band, about the base of the supernumerary hoofs and upon the heels. The vesicles upon the teats are more frequently seen about the orifice and may also cover the teats, and sometimes occur on the skin of the udder. This condition causes much pain. The opening of the teat may be closed by inflammation and swelling resulting from the eruption. Vesicles appear first as small elevations of the superficial layers of the mucous membrane or skin, from $\frac{1}{8}$ to $\frac{1}{2}$ inch in diameter. They are of a greyish color. Vesicles may not become larger or they may increase in size to an inch or more in diameter, or several may become confluent and loosen and raise up an area several inches in diameter. Such extremely large blisters occur upon the tongue and muzzle. The vesicles contain at first a clear, straw colored serum which later becomes cloudy. The membrane covering them is thin and it soon breaks. When the vesicles break, the loosened epithelial or epidermal layer remains for a time attached at the borders, forming a pocket, and as it tears more, the loose shreds of membrane hang about the borders of the denuded area until these become detached and fall away.

Vesicles usually appear first in the mouth and almost simultaneously, or a few hours or a day later, on the feet and udder. Sometimes the vesiculation is observed in but one location. In cattle it is the mouth that is most likely to show lesions, while among sheep and hogs the lesions may be confined to the region of the feet. Vesicles may be few and small or they may be large or numerous. The resulting discomfort and constitutional disturbances are usually in proportion to the extent of the pri-

mary eruption. The affected areas are exceedingly sensitive and painful.

As the vesicles form, the fever abates and when the vesicles rupture, the temperature falls nearly or quite to normal. The subsequent course of the disease is free from fever, unless there is very extensive local inflammation. Vesicles rupture very soon after they form, especially in the mouth, where the membrane covering them is softened by moisture and sustains violence from the constant motion of the tongue, cheeks and lips. About the feet and upon the teats the vesicles last longer. The second stage lasts one to three days.

The third stage, or that of erosion, is characterized by the appearance of raw, denuded surfaces that result from the peeling off of the outer layers of the mucous membrane or skin that have been undermined, loosed and raised up by the fluid within the vesicles. The raw surfaces thus exposed are a bright, rosy red or even scarlet color. They are bounded by a clear cut, abrupt margin and are slightly depressed below the level of the surrounding surface. The surface of the sore is at first smooth; afterwards it is covered by granulations, and later by fluid pus or by a more or less tenacious dirty yellow colored exudate. The surface of the erosion, if upon the cheeks or tongue, may show red, naked papillæ denuded of their epithelial covering.

The soreness of the mouth is in some cases sufficient to prevent the animal eating or drinking for several days, perhaps for a week. Under these circumstances, milk flow ceases and emaciation is rapid. If excessively sore feet add to the discomfort, constitutional effects are more marked. Pregnant animals may abort. In many instances the udder becomes inflamed, especially in fresh cows, and may be permanently damaged or ruined. There is often irritation and discharge from the eyes and nose. Many animals cough, revealing irritation of the bronchial mucous membrane or of the throat.

The disagreeable sensation and the pain of the mouth may cause the animal to work the tongue and jaws and to suck and

click the cheeks and tongue in such a way as to make a peculiar (but not wholly characteristic) smacking sound. There is frothing about the lips and drooling of saliva.

The effect of this disease upon milk secretion is shown by the following record of the yield of a herd of thirty-two milking cows (some nearly dry) in Montour county, Pennsylvania. An infected bull was brought to this farm October 27, 1908; the first symptoms among the cows was observed in one animal November 3d, after which the disease developed rapidly in the herd until all were affected.

Date.	Pounds of Milk.
Oct. 31.....	465
Nov. 1.....	468
Nov. 2.....	437
Nov. 3.....	440
Nov. 4.....	430
Nov. 5.....	378
Nov. 6.....	240
Nov. 7.....	168
Nov. 8.....	156
Nov. 9.....	85
Nov. 10.....	62

The third stage lasts from five to ten days, or about a week.

The fourth stage is the period of healing. Preliminary to healing there may be some corrosion and sloughing, during which erosions develop into deep and extensive ulcers. In most cases, however, healing begins rather promptly and continues rapidly. The erosion gradually closes in from the border and become smaller and smaller until it disappears. When healing is taking place the periphery of the sore area is of a gray or yellowish gray color, and one frequently finds a yellow and rather tough

deposit upon the unhealed surface. When this is removed, the base of the sore is found to be of red color.

The after effects of foot-and-mouth disease are sometimes very marked and of long duration. Dr. Salmon has reported that during the outbreak of 1902-3 in New England a few herds that had passed through the disease were left. In about one-third of these cases the owners afterwards asked to have their cattle destroyed, as the cattle were unprofitable or relapses had occurred. Herds that have passed through foot-and-mouth disease are frequently left in an unthrifty, debilitated condition. This is especially true of dairy herds. Young cattle, dry cows and steers are less severely affected.

There is a malignant form of foot-and-mouth disease in which the mortality is high. Outbreaks of this type of disease, in which from ten to fifty per cent. of the attacked animals died, have been reported from several foreign countries. Complications following foot-and-mouth disease are numerous; they consist of abscess formations about the feet, sloughing of the hoofs, abscesses of the udder, garget, gastro-intestinal catarrh and blood poisoning.

When infected herds are not destroyed, but are kept, the premises remain infected for a considerable time and it is impossible to disinfect the premises as long as the live animals remain, as these animals may continue to distribute the seeds of the disease and may re-infect the clean premises a long time after the symptoms of foot-and-mouth disease have disappeared. An attack of foot-and-mouth disease does not necessarily confer lasting immunity. The increased resistance to infection that follows an attack may continue for one to two years or longer, but it may not endure more than six months, and instances have been recorded wherein animals have passed through two, three, four and even five attacks of foot-and-mouth disease. Some animals have contracted the disease a second time within two months.

The diagnosis of foot-and-mouth disease is not a difficult matter where the disease is discovered in its earlier stages in a herd of animals. When one animal is affected or where the disease

has reached a late stage of development there is often difficulty in distinguishing foot-and-mouth disease from some other condition. There is also difficulty with relation to shipped and market animals brought together in large numbers.

The conditions that are most likely to give rise to error are those due to accidental injuries to the mucous membrane of the mouth and a form of inflammation of the mouth caused by fungi, known as mycotic stomatis.

Wounds, or external injuries of the mouth, are sometimes seen as ulcers upon the edge of the pad opposite the lower incisors. These may be of the shape of the edge of the incisors and manifestly are toothcuts. Such toothcuts may become infected, causing a small ulcer of irregular shape, and sometimes from such a wound there is a cross infection to the inside of the upper lip. Injuries to the tongue, gums or roof of the mouth may be caused by hard, rough objects taken in with the food. Such injuries usually appear as cuts, tears or scratches and not as flat erosions.

From close grazing, especially on a stubble field, cattle may wound the muzzle and lips, or the lining mucous membrane of the lips. Such wounds show as scratches or punctures, or as rough abraded surfaces; they do not have the appearance of erosions and do not have the bright, red color that is characteristic of the lesions of foot-and-mouth disease.

There is another form of injury that requires special mention. Cattle shipped by rail and that have been in the cars for a long time, with little or insufficient food and water, have a tendency to lick and to gnaw the wood work of the car. From this they may sustain injury to the inside of the upper lip and the mucous membrane covering the front of the upper jaw. Sometimes the tongue is rubbed. These injuries appear as defects of the mucous membrane of irregular shape and size, brownish color and rough surface. They may be overlaid with brown, thin crusts. In examining such a lesion, it is well to wash it off with water, whereupon it will be found that the surface is stained and discolored and that it is of rough, warty appearance and looks

"dead" in contrast with the bright red and "blooming" lesion of foot-and-mouth disease. In each case the mucous membrane of the mouth is likely to be pale and there is little if any salivation, in contradistinction to the injection of the mucous membrane and excessive moisture in foot-and-mouth disease. It is to be remembered that in foot-and-mouth disease the epithelium is lifted up, leaving a smooth surface below, whereas in these traumatic defects there is a mechanical tearing or a dry mortification, leaving a rough, irregular surface. This form of traumatic stomatitis is not accompanied by any evidence of foot-and-mouth disease upon the feet or udder. One may find, however, in cattle that have been shipped a long distance a certain amount of stiffness and lameness, and if they have been standing long in foul cars or stockyards, there may be some irritation between the hoofs.

In mycotic stomatitis, there is no preliminary vesicle formation; a distinct layer, as a false membrane, develops upon the surface of the mucous membrane, and the disease is not contagious, although a large proportion of the animals in a herd may be similarly affected, having been exposed to the same conditions.

One must also distinguish between foot-and-mouth disease and ergotism, foot-rot and foul-claw, and between foot-and-mouth disease and cowpox.

The animal that has passed through an attack of foot-and-mouth disease may be recognized by the presence of unhealed ulcers. These, in their last form, may appear only as small red depressions or as yellow spots. Very slightly depressed areas covered by clean mucous membrane may be seen upon the dorsum of the tongue. Such spots following erosions of apthous fever have sharply defined borders and the papillæ covering them are more slender, shorter and whiter than upon the surrounding membrane. The spots may be circular and small, or they may be of irregular shape and cover half of the dorsum of the tongue. The healing of an ulcer at the tip of the tongue—a frequent seat—may leave a little puckering of the membrane. Yellowish

scars or puckering of mucous membrane about the margin of the pad and within the upper lip may remain from the healing of ulcers of aphthous fever.

The soreness of the feet and slightly excessive moisture between the digits may remain after the mouth lesions have healed. Sometimes, after extensive eruptions about the feet, the hoof horn develops a ridge similar to that seen on the hoof of a horse that has suffered with laminitis. There may be a partial separation of the horn from the coronary band, especially at the heels.

It is necessary to hold suspected animals in quarantine until doubt can be removed. In some cases information useful in deciding as to vague and indefinite conditions may be obtained by exposing or inoculating a susceptible animal. In Pennsylvania such inoculations are by law prohibited excepting when made by authority of the State Livestock Sanitary Board.

The prevention of foot-and-mouth disease is a difficult matter on account of the virulence of the disease, the ease with which the contagion may be transported and the vitality of the virus in the bodies of apparently recovered animals and in places that have been contaminated by diseased animals.

In former times, attempts to control the disease were regarded as hopeless, and when aphthous fever appeared in a locality it was the custom of cattle owners to inoculate their animals and put them through the disease as quickly as possible. They simply accepted as inevitable the loss of a large part of the value of the herds and flocks in infected regions.

The methods of prevention that have been practiced have consisted: first, in general restrictions on trade in animals of susceptible species and their products and the products of farms in infested districts, and the quarantine of infected herds and premises until danger shall have disappeared or, second, in the method now being practiced in Pennsylvania, consisting in the destruction of infected herds and the complete eradication, with the greatest attainable promptness, of all known centers of infection.

The method of control by quarantine has been practiced suc-

cessfully in a number of instances. On the other hand, attempts to control foot-and-mouth disease by this method have often failed. It is exceedingly difficult to quarantine effectually against aphthous fever, and to attempt to do so is to take great and unwarranted risks. It is necessary that such a quarantine shall be exceedingly rigid, that it shall be faithfully observed to the minutest particular, and that it shall be of long duration. Otherwise, it is not effective, or sufficient to prevent the spread of disease. As long as premises are under quarantine on account of foot-and-mouth disease there can be no feeling of security in the neighborhood, or even in distant places, on account of the remarkable facility with which this disease spreads. For these reasons, and as a result of considerable successful experience in the use of the "stamping-out" method for the control of foot-and-mouth disease, there has developed, in recent years, a strong sentiment in favor of the application of the second method when the distribution of the disease is such as to denote that it may be successfully controlled and eradicated by this means. The "stamping-out" method was applied with complete success and at small cost in proportion to the value of the work, in New England in 1902-3.

If foot-and-mouth disease has been permitted to become very prevalent in a community, then it is not possible to eradicate it by the stamping out method, and the very long, troublesome and, in many respects, painful and oppressive method of controlling the disease by quarantine must be practiced. This means that the work would drag on and quarantine restrictions would have to be continued for years. The successful application of the stamping-out method, even at very large cost, is by far to be preferred.

If the diseased herds are promptly slaughtered and the contaminated premises disinfected, quarantine regulations may be of relatively short duration. On the other hand, if the infected herds are held under quarantine for recovery, the premises they occupy are dangerous and may be a source from which the disease may spread for as long as six months, or perhaps longer, after the recovery of the diseased animals.

TUBERCULOSIS; WHERE ARE WE AT?

BY GEO. W. KINSEY, B.S., M.D.C., WHEELING, W. VA.

It is deemed a special privilege by me to have an opportunity of addressing the Ohio State Veterinary Association. While I have a few practical ideas for your consideration, there may be nothing new, but I will feel amply repaid if I am able to create a new thought in the mind of a single member. Any medical man, whether he be a veterinarian or a physician, could scarcely fail to appreciate tuberculosis as the leading and most important pathological topic of our time. A disease that destroys about one-ninth of the human race, a disease that affects all the mammalian animals as well as birds and reptiles. It is shown by statistics that about one per cent. of all cattle slaughtered in this country are affected with tuberculosis and between one and one-half and two per cent. of all swine. The economic loss to the country is a momentous question. The consumption of meat is injured at home and our markets destroyed abroad. Even the consumption of milk, the invalid's salvation, is greatly reduced. But the burning question that interests us most is, where are we at? Are we prepared at the present time to attempt to exterminate tuberculosis from this country? Those who are enthusiastic would probably say the time is ripe, while others perhaps more conservative, have a different view. The physician considers the matter from a humanitarian standpoint, but the veterinarian from force of circumstance is compelled to regard it as an economist. If we look at the subject as a humanitarian or from the standpoint of the physician, we are in duty bound to exhaust all our powers in

* Read before the Ohio State Veterinary Medical Association, Columbus, Jan. 1910.

order to protect human life, while, on the other hand, as veterinarians, we are compelled to depend more on conditions of economy and retain the sympathy of those whose financial interests are more directly at stake. If we are pessimistic we may think a plague is upon us, as we are reminded by history that the disease has existed since the earliest times. We may believe in forward nation or with the elected, "We will be damned if we do, or we will be damned if we don't," or accept the Darwinian theory the survival of the strongest" as nature's way of checking too rapid an increase of population. We may be optimistic and believe in therapeutic evolution and even perceive the dawn of some preventive or cure by some such means as the "cellular theory of immunity," leucocytosis, phagocytosis, opsonins, opsonic therapy, toxins, antitoxins, enzymes, or some other times yet to be discovered.

It is supposed that about one-twelfth of human tuberculosis is due to intestinal infection and about one-half of human intestinal tuberculosis is due to animal origin; it follows, therefore, that about one-twenty-fourth of human tuberculosis is due to bovine infection. Less than five per cent., then, of human tuberculosis can be credited to the account of the dairyman. Now, assuming this to be a fact, we cannot entirely excuse the dairyman's responsibility, but it is very unreasonable to have laws or rulings that compel the destruction of all cattle that react to a single tuberculin test and with no equivalent for the loss. The State of West Virginia last year had appropriated but three thousand dollars to indemnify owners of all the live-stock condemned from the various diseases throughout the state. It would have been a very arduous task for our authorities to have stamped out the two recent outbreaks of foot-and-mouth disease in this country if the state and government had not come to the rescue, by the government paying two-thirds and the state one-third of the valuation of the animal.

The United States Department of Agriculture through the Bureau of Animal Industry is doing a great service to the coun-

try. Through its civil service system our meat supply is becoming more wholesome. The tabulated facts collected by this department concerning conditions in the country are important and necessary factors, before we can expect any degree of success in the eradication of tuberculosis. This department with its many scientific investigators and some twenty-five hundred inspectors is developing statistics that are of great importance in order to deal intelligently with the disease. But owing to its present laws in its relation to the application of tuberculin, which requires the destruction of all cattle that react to a single test, its usefulness in that direction can be but little utilized. A single tuberculin test is not sufficient or accurate to warrant the destruction of all animals that show a reaction. Statistics from the department show us that the action of tuberculin can be relied upon in about 97 per cent. of cases. The bacillus of tuberculosis is supposed to require an indefinite incubative period of from eight to fifty days. If an animal was infected, and a tuberculin test was made within fifty days afterward, we could not depend upon the result. Suppose a number of animals were infected about the same time, or a number of calves from taking infected milk, which is quite possible, and the test applied within the limits of the incubative period, the results from the test would not be definite. It is recognized that old or encapsulated cases of tuberculosis will not react to the test and these may break down later and reinfect the system. If an inferior make of tuberculin was used the test would be still less accurate. The department furnishes tuberculin and tests herds free, provided the owner will qualify himself to destroy all animals that react to the test. This is where we are at, and this is the stumbling block that is in the way. If wealthy, ambitious owners of pure bred stock oppose the execution of this law, what should be expected from a poor dairyman. Within the last year, to my personal knowledge, a multi-millionaire owner of imported thoroughbred dairy cattle, after having them tested by the Department and getting two reactors out of some fifty head, refused to destroy them without a second reaction. It may be thought to

be an easy matter to apply this law. But there is something radically wrong with the system.

Tuberculin is misused and misapplied in various ways. For instance, we have laws of interstate commerce in about thirty-three different states governing the transportation of tubercular cattle. These laws in general require that all cattle shipped from one state into another for dairy or breeding purposes should be treated with tuberculin just before or just after entering the state. This necessitates considerable trouble and expense, and no doubt would be justifiable if the results were equal to the means; but as we have seen previously, when a good quality of tuberculin is used, about three per cent. or three cattle out of every hundred are lacking accurate diagnosis. Tuberculin can be procured of various manufacturers and the cattle can be easily immunized previous to the test being made so no reactors could be expected. Suppose a correct test to have been made and the healthy animals removed, the reactors that remain are allowed to be sold and resold and find their way into some dairy, and that locality becomes a localized centre for the distribution of the disease. Then the healthy cattle, after being shipped into one of the thirty-three restricted states are sold as the law reads "without restriction," and go into non-tested herds and are exposed to infection just the same as they were previously to being tested. If the cattle are shipped before being tested, what is the method employed and the result? The law of Pennsylvania passed some thirteen years ago, or in 1897, is as follows: In place of an inspection outside of Pennsylvania as provided above, dairy cows and such other cattle as are for breeding purposes may be examined and tested with tuberculin at suitable stockyards nearest to the state lines on the railroad over which they are shipped. Such examinations are to be made by inspectors approved by the State Sanitary Board and at the expense of the owners of the cattle. If this law was enforced, would its utility be practicable? Without hesitation we say no, because there are numerous ways of evading it. Within the past year a shipper of dairy cattle who usually shipped in the vicinity of

Philadelphia, stated to me that he had them tested over there for five dollars a carload, and when asked what became of the reactors, said that he did not have one out of twenty-two hundred. Is it possible for dairy cows bought here and there over the country in carload lots to be entirely free from tuberculosis? There are other ways of evading the interstate commerce laws; for instance, in some states the inspector is required only to make affidavit that he used the test and took the temperatures as required by the test record. The chart or test record is signed by the inspector who takes oath to the affidavit; little is stated concerning his qualifications except that he is able to sign his name Doctor So-and-So, V.S. There is no penalty whatever for the misuse of tuberculin. I was informed by a veterinarian in the State of Ohio, when approached by a shipper concerning the testing of a carload of dairy cattle, that he was told that he could get them tested in Pennsylvania for twenty-five cents a head. In answer as to how it was done, he stated that one man went along with a syringe and another followed with a thermometer, and the work was all over in five minutes. It is therefore a matter easily determined how our present laws of compulsory slaughter and interstate commerce, allowing the misuse and abuse of tuberculin, are ineffectual; the one requiring all reactors to be destroyed, while the other allows them to go free. An extract from the pen of my old college friend, Dr. O. E. Dyson, formerly chief of the Chicago division of the B. A. I., is quite illustrative of the point I wish to make. "While it is true that various states have enacted laws intended to prevent tuberculous cattle from being shipped into them, these laws have positively served little or no practical purpose, simply for the reason that they are easily evaded. Furthermore, there seems to be no law which would tend to prevent the sale of diseased animals as healthy stock within the state. Consequently the purchaser is afforded absolutely no protection against the deception usually practiced by breeders of and dealers in tuberculous cattle, who can easily evade the laws as they now stand.

The purpose of all laws should be for the protection of man-

kind against any and all designing malefactors. Such, however, is not the case with any state or federal law dealing with the question of tuberculosis in cattle. In fact, the reverse is true. As matters now stand, tuberculosis in the herd of an honest breeder or dairyman is easily detected, and when this is done, the owner is held responsible and prevented from disposing of diseased animals as healthy. On the other hand, the malefactor is without question permitted to practice his deception and prey upon the public at large without the slightest restraint; this being accomplished as a result of his knowledge of the efficacy of the tuberculin test as a diagnostic agent, and to the fact that a diseased animal after having reacted to the initial test will generally fail to react to a second test for a varying period ranging from one to several weeks or months. As a result of this knowledge, it is an easy matter for the unscrupulous owner to defeat the object and purpose of existing laws in addition to swindling the purchaser by "doping" his cattle with tuberculin previous to submitting them to the buyer's test. Such acts are common and generally practiced by the breeders of diseased cattle much to the detriment of the live-stock interests to-day.

In a relative way let us consider for a moment conditions in other countries. The Canadian government supplies tuberculin to any reputable qualified veterinary surgeon, on conditions that he return a chart furnished by the department showing the results of the test.

In Denmark, the whole expense of the testing is born by the government provided the owner binds himself to follow sanitary rules, and keep the healthy animals safely isolated from those suffering from the disease. The veterinarian making the test is also obligated under penalty, to see that those conditions are carried out in the proper manner. In Denmark the government has entire control of tuberculin, while in the United States any manufacturer can dispense it. This is called the Bang system of Denmark. There are other systems or rather modifications of the Bang system as the Ostertag of Germany, and Dr. Nivan, of Manchester. But the Bang system is about the only one tried

with any success. This has been successful in Denmark and been tried with beneficial results in this country, but it is claimed that it will never become popular on account of our small and diversified dairys. A dairy composed of a dozen or twenty cows cannot afford to be divided up into two separate herds, two pastures and have two sets of attendants. The majority of our dairymen have broader opportunities and would leave the business instead. If we view the Bang system a little more closely for a moment, we find it has been tried since 1893, and only where the owners have been in sympathy with it, eradication has been successful.

According to this system the reactors are isolated or separated and never allowed to again mingle with the rest of the herd. All advanced or clinical cases and those found to excrete bacilli from the udder are destroyed, and the owners remunerated from one-third to five-sixth their market value.

Every six months the herd is tested again and the reactors separated, until the herd is free from tuberculosis. Calves are raised from reactors or infected cows, but are removed immediately after calving. Bang regards tuberculosis as a purely infectious disease. A calf may be infected before being born, but very rarely. Most calves are born healthy, even of tubercular cows, and will remain so if preserved from infection. Most reactors to the tuberculin test are but slightly affected and according to Bang there is no reason to destroy milk cows that do not show clinical or physical signs of the disease.

As a matter of history let us view some of the results. Beginning in 1892, Bang was able to demonstrate the practicability of his theories by changing a herd in which eighty per cent. of the milk cows reacted, and forty per cent. of the young cattle and calves; until in 1907 not one animal out of 211 reacted.

This herd is one that is now supplying Copenhagen with "superior milk, or milk for infants." Another herd which had seventy-four reactors out of 166, or forty-four and one-half per cent. in 1896, had increased to 274 head in 1908 and showed three reactors. In another herd in which eighty-two per cent. reacted in

1894, resulted in one calf slightly reacting out of 245 animals in 1908. Another herd had ninety per cent. of reactors in 1898 out of 286 animals and in 1907 out of 593 head two reacted slightly or one-third of one per cent.

Statistics of Denmark show the older the animal the larger the per cent. affected. Out of 40,000 cattle tested, calves run twelve per cent.; from six to eighteen months, twenty-seven per cent.; from eighteen to thirty months, thirty-eight per cent.; from two and one-half to five years, forty-four per cent., and over five years forty-eight per cent.

Those herds free from tuberculosis are found to live and be productive much longer.

Eradication in small herds has been found to be much easier and still more successful than in larger herds.

Professor Bang says "on 66 farms having 1,045 reactors out of 1,825, or 57 per cent., in 1905 had no reactors at the end of the test. The expense of the system is almost nothing to the cattle owner as the government pays the expense of the testing, but the co-operation of the owner is the most important factor."

The Bang system for the suppression of tuberculosis is probably the most economical and practical of any that has been tried. This system allows the owner of dairy cattle to make use of their own ideas and work out the problem of perfecting their herds largely themselves. This must be conceded among intelligent people before any degree of success will be allowed.

So far we have been dealing with the subject in a negative manner, but the crucial test depends upon a solution to the problem. The success of any system in this country will depend largely upon its popularity. It should antagonize as little as possible, be based upon practical ideas and appeal to the producer, as well as be beneficial to the consumer. It should be under government supervision similar to our meat inspection service, especially in so far as the use of tuberculin is concerned. Dairy animals could then be tested with more accuracy and records of the testing kept by the Department of Agriculture.

The most urgent reform at the present time is for the government to assume entire control of the distribution of tuberculin. Conditions would then be better for any system and the testing of cattle would begin on a sound basis. When the foundation is faulty the superstructure can never stand. Such a system would include the testing of animals about every six months for the first few tests, then afterwards perhaps once a year would be sufficient. Every diseased animal should be marked by cutting a knotch out of the ear at each reaction.

For convenience this mark should be in the form of a letter V and on the lower lobe of the ear following the first reaction. Subsequent reactions should be marked on the lower side of the ear. These knotches would show how many tests had been made and would designate an undoubtedly unsound animal and be visible at a glance. This would cause these animals to be handled as unsound, the same as blemished horses are to-day. It would develop an evolutionary process and cause their gradual elimination from the herd.

If a city or municipal government would adopt a system of this kind with government control of tuberculin, the purification of their herds would be revolutionized. Dairymen would feel personally responsible so long as there were any diseased animals in their herds, as they would be visible at all times and by anybody. This plan would develop a progressive system. The percentage of diseased animals allowed could be gradually reduced from year to year until the disease was entirely eradicated from each herd. This system would apply more directly to cities and communities than to the government as a whole, as our beef cattle are already largely taken care of by Federal inspection, but for progressive cities or towns that are wide awake to their opportunities, it could not be less than progress in the right direction.

In conclusion we must remember that tuberculosis has had its ups and downs, that the scientific world must become a unit, that our laws must be revised, and that we must "have the people with us."

TUBERCULOSIS.

AN ADVANCE COPY AND A RESOLUTION.

BY E. C. SCHROEDER, EXPERIMENT STATION, BETHESDA, MD.

AN ADVANCE COPY.

Among those who are interested in the relation of bovine tuberculosis to public health, it has been quite generally known that Dr. William H. Park, Director of the Research Laboratories of the Health Department of New York, and his associates, were making careful, systematic studies of the types of tubercle bacilli currently found in human tuberculous lesions. Hence, the announcement that Dr. Park would present a paper before the Pathological Section of the National Association for the Study and Prevention of Tuberculosis on May 3, 1910, entitled "Types of Tubercle Bacilli Found in Human Tuberculosis and Their Relative Significance," aroused widespread interest. It was sincerely believed by many tuberculosis investigators that we would obtain authoritative data which, even though they did not wholly solve the problem, would throw clear light on the percentage of human tuberculosis certainly chargeable to the bovine source of infection.

On May 2, 1910, I was given what purported to be an "Advance Copy" of the paper Dr. Park would present the following day. This advance copy was handed me by one of the registration attendants of the National Association for the Study and Prevention of Tuberculosis, and as far as I have been able to learn was prepared somewhere within the Association and was distributed by it as an authorized document. On first view the advance copy seemed to be typewritten; on closer inspection it

was found to be printed. As I wish to speak about it in detail, I will give its precise text, which follows:

Advance Copy.

Released for publication after 12 o'clock noon, May 3d, 1910.

Abstract of paper by Dr. William H. Park and Dr. Charles Krumwiede, of New York, on "Types of Tubercle Bacilli Found in Human Tuberculosis and Their Relative Importance," before the Pathological Section of the National Association for the Study and Prevention of Tuberculosis, Washington, D. C., May 3d, 9.30 A. M.

That only 2½ per cent. of all tuberculosis in New York City comes from infected milk, butter, or meat, that is, from bovine sources, was the claim advanced by Dr. Park. This small percentage, moreover, is found mainly in children. In other words, pulmonary tuberculosis among adults is contracted solely from human beings, and is not the result of impure milk or food.

Dr. Park supported throughout his paper the contention advanced by Dr. Robert Koch, of Berlin, the discoverer of the tuberculosis germ, before the International Congress on Tuberculosis in Washington, 1908, when he stood practically alone in declaring that cattle did not transmit pulmonary tuberculosis to human beings. Dr. Park's conclusions show that out of 297 adults over 16 years of age examined in the research laboratories of the New York City Department of Health, only one showed tuberculosis of the bovine type, and that was simply a slight infection of the kidney. Two hundred and seventy-eight out of the 297 suffered from tuberculosis of the lungs in a fairly advanced stage, and of these not one showed a sign of bovine infection.

Out of 54 children between the ages of five and sixteen, 45 showed the human type of tuberculosis and only 9 the bovine, showing that even in this class the chief source of infection was from one human being to another, and that the danger from tuberculous milk or butter was comparatively slight.

Even in the cases under five, examined by Dr. Park and his assistants, out of 84 individuals, 62 showed the human type and 22 the bovine. Out of 40 fatal cases of infants, in 36 tuberculosis was of human origin and in only four from bovine sources. Out of a total of 436 tuberculous persons of all ages examined in only $2\frac{1}{2}$ per cent. was their disease due to infected bovine products.

The significance of these conclusions, it was pointed out, will be to direct all the energy of the campaign against tuberculosis to combating the spread of this disease among human beings, by preventing spitting, bad housing, overwork and other conditions bad for the health.

Dr. Park showed how the experiments had been carried on, and said that in only three instances was there any question as to the type of bacillus. He said, "We have seen no proof that the bovine type changes in man to the human type, or that the human type changes in calves of the bovine type."

Dr. Park was assisted in the preparation and presentation of his paper by Drs. Krumwiede, Anthony and Grund.

On May 3, after hearing the paper on which this advance copy is based and of which it claims to be an abstract, I went to Dr. Park and asked him how it happened that he did not draw the same conclusions in his paper that were given in the abstract of it, and then showed him the advance copy. Dr. Park looked at the purported advance copy and said that he had not seen it before, that he was without knowledge of its existence, that it was issued without his consent or authority and that it contained conclusions with which he did not agree. In plain language, in the presence of several witnesses, Dr. Park repudiated the advance copy of his paper, which was evidently distributed by the National Association for the Study and Prevention of Tuberculosis.

In the first paragraph of the repudiated, unauthorized advance copy the statement is made that "only $2\frac{1}{2}$ of all tuberculosis in New York City comes—from bovine sources."

If we read on we find the data on which this statement is based, so that it is a simple matter to use the data in the advance copy itself to construct a table which will show at a glance that the real danger to which public health is exposed through the use of food products from tuberculous cattle is nearly three times $2\frac{1}{2}$ per cent. (See Table I.)

TABLE I.

Table showing types of tubercle bacilli found by Doctors Park, Krumwiede, Anthony and Grund in cases of human tuberculosis in the City of New York, constructed from what purported to be an advance copy of Dr. Park's paper read on May 3, 1910 (before the Pathological Section of the National Association for the Study and Prevention of Tuberculosis.

Ages of Tuberculosis Individuals.	Human Types.	Bovine Types.	Percentage of Bovine Types.
Persons 16 years old and older.....	296	1	0.33%
Persons from 5 to 16 years old.....	45	9	16.66%
*Persons under 5 years old.....	62	22	26.19%
Total	403	32	7.12%

In the fourth paragraph of the advance copy the statement is repeated that "only $2\frac{1}{2}$ per cent." of human tuberculosis is due to bovine infection. Just how this percentage is obtained is something of a mystery, because the advance copy itself shows that 435 cases of human tuberculosis were examined and that 32 of this number were found to be due to bovine types of tubercle bacilli, and 32 is 7.12 per cent., and not $2\frac{1}{2}$ per cent., of 435.

To show conclusively that the error is not due to mistakes made in recording the data in the advance copy that was ob-

* Includes 40 cases of fatal tuberculosis in infants, 4 cases, or 10%, of which were due to the bovine type of tubercle bacillus.

tained from Dr. Park and his associates, the two following tables are given, which explain themselves.

TABLE II.

Table showing the types of tubercle bacilli found by Doctors Park, Krumwiede, Anthony and Grund in cases of human tuberculosis in the City of New York, as reported by Dr. Park at the meeting on May 3, 1910, of the National Association for the Study and Prevention of Tuberculosis. (From notes taken during the presentation of Dr. Park's paper.)

Character of Tuberculous Disease.	Persons 16 Years Old or Older.		Persons 5 to 16 Years Old.		Persons Under 5 Years Old.*	
	Human Types.	Bovine Types.	Human Types.	Bovine Types.	Human Types.	Bovine Types.
Pulmonary	278	..	8	..	5	..
Cervical Adenitis.....	10	..	23	8	6	12
Generalized	2	..	1	..	13	5
Generalized with Meningitis ..	..	..	1	..	32	2
Bones and Joints.....	1	..	10	..	6	..
Abdominal	1	..	1	1	..	3

The total number of cases included in the above table is 429, of which 398 were found to be associated with the human type of tubercle bacillus and 31 with the bovine type; hence, of all the cases examined, 7.22 per cent. were found to be due to bovine tubercle bacilli.

The cases of tuberculosis recorded in the above table are the same as those recorded in Table No. III., with the addition of 17 cases not included in Table No. III.

TABLE III.

Table showing the types of tubercle bacilli found by Doctors Park, Krumwiede, Anthony and Grund in cases of human tuberculosis in the City of New York, as reported in the *Bulletin of*

* Includes 40 cases of fatal tuberculosis in infants, 4 cases or 10% of which were due to the bovine type of tubercle bacilli.

the Johns Hopkins Hospital, Vol. XXI., No. 229, Baltimore, Md., April, 1910.

Character of Tuberculous Disease.	Persons 16 Years Old or Older.		Persons 5 to 16 Years Old.		Persons Under 5 Years Old.*	
	Human Types.	Bovine Types.	Human Types.	Bovine Types.	Human Types.	Bovine Types.
Pulmonary	277	..	8	..	5	..
Cervical Adenitis.....	9	..	19	7	5	11
Generalized	2	..	1	..	13	5
Generalized with Meningitis ..	..	..	1	..	31	1
Bones and Joints.....	1	..	10	..	6	..
Abdominal .....	..	..	..	..	..	..

The total number of cases included in the above table is 412, of which 388 were found to be associated with the human type of tubercle bacillus and 24 with the bovine type; hence, of all the cases examined, 5.82 per cent. were found to be due to bovine tubercle bacilli.

Dr. Welch, of Johns Hopkins University, called attention to the fact that the cases of tuberculosis examined by Dr. Park and his associates were not cases specially picked to show that bovine types of tubercle bacilli may cause human tuberculosis.

The tables show that the percentage of human tuberculosis due to the bovine source of infection is much larger than most conservative estimates warranted us to believe, and the following discussion of a paper read by Dr. Theobald Smith, at the same meeting of the National Association for the Study and Prevention of Tuberculosis at which Dr. Park read his paper, indicates that we cannot say with certainty that the full danger to which public health is exposed through the use of food products from tuberculous cattle is shown by the high percentage derivable from the work of Dr. Park and his associates.

In discussing Dr. Smith's paper, which dealt with the reaction curve obtained by growing tubercle bacilli in glycerine-bouillon, Dr. Park said that "10 per cent. of the cultures of

* Includes 40 cases of fatal tuberculosis in infants, 4 cases or 10% of which were due to the bovine type of tubercle bacillus.

tubercle bacilli he classified as human types in his paper gave the bovine reaction curve in glycerine-bouillon." To explain this phenomenon, Dr. Smith said that "the ten per cent. of cultures in question may represent aberrant forms of bovine tubercle bacilli that have been altered by retention in the human system."

I presume that we must not lay too much stress on the extemporaneous remarks made by investigators when they are discussing technical questions which have been unexpectedly brought to their attention, otherwise Dr. Smith's explanation should lead us to conclude that he now believes in the transformability of tubercle bacilli through the influence of environment from one type to another type. Apart from this, however, since Dr. Smith continues to give the reaction curve in glycerine-bouillon great importance as a means for distinguishing between human and bovine types of tubercle bacilli, we should not overlook the statement made by Dr. Park, or dismiss it lightly as having no special significance, because, if ten per cent. of the tubercle bacilli classified by him as human types showed the bovine reaction curve, and, as he also stated, all the cultures classified as bovine showed the bovine reaction curve, we have the right to draw one of two conclusions, as follows: Either Dr. Park used special care to keep the percentage of cultures classified as bovine types down as low as he reasonably could, or he found a larger percentage of types of tubercle bacilli that should be classified as intermediate or transition forms than his paper shows.

The three tables which have presented, remember, show, though less than one per cent. of tuberculosis among adults is associated with bovine types of tubercle bacilli, that more than one-quarter of all tuberculosis among children under five years must be charged to the bovine source of infection; hence, if we accept the evidence various investigators have supplied to prove that tubercle bacilli are not constant in their types and virulence, and bring this to bear on the 10 per cent. of tubercle cultures from human tuberculosis which Dr. Park classified as human

types, notwithstanding that they gave the bovine reaction curve, and keep in mind that the percentage of perfect bovine types of tubercle bacilli found in human tuberculous lesions decreases directly as the ages of the infected persons increases, we have the right to pronounce an indictment against raw milk from tuberculous cows which stamps it as a serious disease producing agent.

Let us now turn to the fifth paragraph in the advance copy, which directs how and where "all the energy of the campaign against tuberculosis" shall be expended, and which absolutely ignores the bovine source of infection for children as well as for adults.

I specially brought this paragraph to Dr. Park's attention and he specifically denied its conformity with his views. Compare the repudiated paragraph with the following, which is copied verbatim from the résumé in the *Bulletin of the Johns Hopkins Hospital*, which supplied the data for Table III.

"In infants and young children, however, bovine infection causes many deaths and deserves that we give serious consideration to its prevention. This can best be done by safeguarding the milk and butter supply of young children."

This quotation, I have reasons to believe, expresses the conclusion from Dr. Park's work which he is willing and prepared to indorse.

The spurious paragraph under discussion was widely published in the daily newspapers and also appeared, only slightly altered, in the *Survey*, a journal devoted to social, charitable and civic matters, on May 14, 1910.

A RESOLUTION.

During the last meeting of the National Association for the Study and Prevention of Tuberculosis six resolutions relative to the pasteurization of milk were indorsed. About the first five of the resolutions I don't care to say anything, but the sixth, because it seems to have been shaped by the same elements that gave the advance copy its objectionable character, requires a little attention.

The resolution reads as follows:

Resolved, That in the opinion of this association it has been proven, apparently, that a small percentage of the cases of non-pulmonary human tuberculosis, especially tuberculosis of the lymph nodes in children under five years of age, is due to infection by tubercle bacilli of bovine origin.

I would like to know what the object of the word "apparently," following the words "it has been proven," is. Is the National Association for the Study and Prevention of Tuberculosis ignorant of the work done by the German Imperial Tuberculosis Commission, the British Commission on Human and Animal Tuberculosis and numerous responsible and widely recognized independent investigators? Is the word "apparently" either reasonable or serviceable excepting it is designedly used to divert attention from one important and absolutely proven source of tuberculosis, the source most easily controlled? Is the life and health of one-quarter of the children under five years who contract tuberculosis of so little consequence that the cause of their death and disease can be dismissed with the word "apparently?" Or is the Great National Tuberculosis Association of this country taking the position that bovine types of tubercle bacilli in human tuberculous lesions show nothing conclusive? Are we to be asked shortly to believe that human types of tubercle bacilli can be converted into bovine types in human tissues, especially in the tissues of children?

Let us not forget that honesty, even in a tuberculosis campaign, is a principle we cannot afford to ignore.

THE VETERINARY MEDICAL ASSOCIATION OF NEW JERSEY will hold its semi-annual meeting in Newark July 14th and 15th, with headquarters at the Achtel-Stella, 842 Broad street, where the first day will be devoted to the usual routine business and papers. On the second day (July 15th) a clinic will be held at Dr. Runge's hospital, 130 Union street. The latch-string is always outside to veterinarians from the neighboring states who are always sure of a hearty welcome.

SURGERY AND THE COUNTRY PRACTITIONER.*

BY C. G. GLENBERG, CLINTON, ILL.

When our president and secretary both wrote me and said that it was up to me to furnish some part of the program for this meeting, I assure you I did not want to, for I had nothing of interest to bring you. After I had notified the secretary that I would try and had given him my subject, I found that I had undertaken a task far greater than I intended. However, I will do the best I can and I will treat the subject in a general way, so if I do not suggest anything new, I can at least present my views on a subject that comes close home to every country practitioner.

Surgery means a healing of disease or injury by manual operation. These days when we mention surgery, the knife and blood are suggested, even though we know what Webster's definition is.

Considering surgery from every standpoint of the present scientific methods, its true definition must be, "The manipulating and adjusting, the applying to, or taking away, from the body that which tends to produce a state of health."

You can notice at once that such a definition calls for certain special qualifications in the make-up of a surgeon. I have classified them as follows:

First, Natural Talents; second Acquired Talent; third, Material Equipment; fourth, Common Sense.

The first principle required to produce a successful surgeon is his natural born talents, such as the steady nerve, inventive genius, accurate calculation, quick perception, delicate touch, and

*Read before the December meeting of the Illinois Veterinary Medical Association.

the agile movement of the fingers. These qualities we do not all possess, and they cannot be acquired, though they may be somewhat developed and improved by practice.

The second principle is acquired talent. No person gifted with a perfect natural surgical talent can succeed without a thorough knowledge of the science of surgery. It is true his natural talent may enable him to accomplish some wonderful stunts, but without the knowledge acquired through the study of the science, he is groping in the dark. What constitutes the acquired talent? We might call it the mental equipment. It is not only necessary for the surgeon to have all the knowledge that goes to make a good general practitioner, but he must have some special training. It is essential that he be a thorough anatomist, both theoretically and practically. And in morbid anatomy to be able to recognize the cause, progress, and final termination. Asepsis and antisepsis must be thoroughly comprehended. He must be an adept with the use of anæsthetics, and also have the practical experience which is the only thing that will furnish him the power to skillfully manipulate all the essential material equipment that goes to make up the modern surgeon's outfit.

The third principle is the material equipment, which includes all the agencies discovered and invented by modern skill and science, to assist us in handling our patients, manipulating the delicate structures and protecting them from the ravages of infectious bacteria. No surgeon with abundance of natural and acquired talent can hope to succeed without a supply of the best surgical instruments and appliances obtainable.

The fourth principle is common sense. It is the qualifying element. It is that quality of our being that causes us to handle our patients in a practical and careful way. It prevents us from being carried to extremes by scientific theorists, or lowering ourselves to the methods of the barnyard surgeon. Have you ever lost your patient, your customer and confidence in yourself by failing to exercise your common sense? I have.

Common sense keeps us from being too nice or too nasty in operating. Let me illustrate. I saw a young graduate trying

to disinfect and shave the spot on a horse where he expected to insert the trocar, when the animal was wild with pain and dangerous to be around and in danger of dying from the distention of gas. Too nice. Common sense is the balance wheel of all our powers, and must be the constant companion of every successful surgeon.

All that I have said applies to both the city and country surgeon. These qualities enumerated are essential to make a perfect surgeon. Unfortunately a very small per cent. of us are perfect especially in the natural qualifications. And another small per cent. of us are totally void of natural surgical talents.

You see how this subject leads to specialization in our work to obtain the greatest degree of success. I am going to leave the specialist out for the present and deal with the great common mass which I think will take in ninety per cent. of us.

But let me say here that I fully believe that the specialist in veterinary surgery will find a greater field for his labor as the standard of veterinary education advances.

We as surgeons may be excusable for some lack of natural talents, but the perfect mental and material equipment is within the possibility of all, and I think should be required of us before we set up as qualified surgeons. How can we who are not specialists make the greatest success in surgery? Can we in the country be as nice and scientific with our operations as we have been taught in college? Can we in the barnyard with the wind blowing the dust and dirt in all directions, and our assistance limited, expect to successfully perform operations that tax the ingenuity and skill of the city veterinarian who is favored with all the conveniences of a modern hospital? To be successful in our surgery is very essential to us as country practitioners. It is not only the most remunerative branch of our work, but by it we can easily demonstrate our ability compared with that of the non-graduate. And we can just as easily bring ourselves into disrepute. We may administer medicine in the treatment of disease that will cause the death of our patient without exciting the suspicion of our client. The many mishaps and unfortunate

results that often naturally follow surgical operations are usually charged up to the surgeon. You will be cited to the fact that Farmer Jones years ago performed that same operation successfully, with nothing but a jack-knife, darning needle and waxed thread. I think the time has come when we as professional men, educated veterinarians, should not practise surgery in the barnyard, as we have done in the past.

Occasionally we may have conditions favorable in the country yard, where we can perform the operation in a thoroughly aseptic manner. We will then leave the patient in the care of some person who knows nothing of the laws of cleanliness, and the result of our surgical feat proves a failure. The same case kept under the care of a competent person the results would have been quite different. It is true we are told of some marvelous operations successfully performed by some man who knows nothing of bacteria or disinfectants, and cares less. They forget to tell us of the many funerals that have followed in the wake of that same man's surgical career.

We as professional men cannot afford to take the risk. They will forget about our wonderful stunts and advertise our funerals. They are justifiable in expecting more of us. It is right that they should, for we are not excusable if we have neglected the least essential precaution. There are a great many minor operations that can be performed just as easily one place as another. There are a few major operations that have to be performed immediately and on the spot where the animal is found. In such cases we have to take the risk, and do the best we can. A majority of the surgical cases can be brought to us and left for the after treatment. I am fully convinced that every veterinarian who professes to be a surgeon should have as part of his equipment a well lighted sanitary operating room, furnished with a table that can handle his patients with safety, and with satisfaction to himself. The expense of such an outfit can be brought within the reach of every practitioner even in the smaller towns.

The reputation such a place will give will return more than its cost in a very few years, saying nothing of the time and en-

ergy saved and the quality of work you will be able to do. The time is already here when the surgeon not so equipped cannot hope to compete with his neighbor who is. Though the animal may be taken home for the after treatment, it pays to have your patient during the operation where you can do the work with credit to the profession and with comfort and satisfaction to yourself. It will take but little education to teach the farmer that it is economy to pay a few dollars more and leave the patient for after treatment, thus adding to your record as a surgeon as well as to your financial gain.

It is not my purpose to discuss methods at this time. I want in a general way to present some of the essentials in all operations. In many cases the ingenuity of the surgeon is taxed to the limit. So many cases presented to us in just a little different form than we have ever heard described. Proper diagnosis is very important at this point. If we know exactly what we have, the operation is simplified; but if we are guessing we are almost sure to come to grief before we get through. Before deciding on an operation our examination should be thorough. If the case is one that you cannot fully decide on its true condition, consultation should be requested. It may be impossible to secure competent consultation, so it is up to us to devise methods of our own. It may be that our reputation in that neighborhood hangs on the issue of that operation. I find it is a good policy to put most of the responsibility on the client in these critical cases. A full explanation of the nature and dangers of the case before operating, often saves the surgeon much embarrassment when the case reaches the real issue. I have found it quite agreeable to make a confident out of my client before entering on the critical operations.

It is some question in my mind how much experimenting we should do. It is not only our own reputation that is at stake, but that of the profession in general. If we through lack of experience make a failure with some operation that can be successfully performed, we leave the impression in that neighborhood that a graduate is no better than the old horse doctor. And it

takes some proof to overcome that impression. I believe the safe and better plan is to be neighborly and call in assistance on these critical cases. I believe if we as country practitioners would work together and have more consultations in our work it would result in profit in many ways to us and in many cases to the farmer. And it might not be out of place to call in a specialist to operate for us. The farmer gets the idea that there is something lacking in the veterinarian who calls in assistance. It is not so with the medical profession; they expect them to need help. And there is no reason why the veterinarians should not work together as do the M. Ds.

The use of anæsthetics in veterinary surgery, I believe, is the proper thing. Not only from a humane standpoint but as an assistance in doing better work. I do not think we should strap our poor dumb patients and torture them just because we can. I know it is difficult to secure a competent person in the country towns to administer the anæsthetic. I believe we should make our surgery important enough to pay for calling in our neighbor oftener than we do. I would not have us combine to rob the poor farmer, but I would have us combine in the interest of our patients, and put an end to much of the torture they have to endure at the hands of our profession.

Local anæsthetics can be used with good results in many cases at a nominal cost. They will bring great relief to the patient and quite an assistance to the operator.

Antiseptics and cleanliness are very important factors with the surgeon operating in the country. It is not enough to use an antiseptic, but we should know that the one we are using has the properties in sufficient strength to protect the wound from infectious bacteria. The absolute sterilization of everything intimately connected with the surgical operation is necessary. The hands of the operator are so often neglected after he has secured the patient. And when the farmer brings you water for cleansing purposes, nine out of ten will bring it in a slop bucket, and some will even try to force you to use the filthy bucket, as they

do not want to spoil a fifteen-cent milk pail with your horrible medicine.

If you must operate in the country, take time to give the farmer his first lesson in cleanliness. For if cleanliness is next to godliness in our personal lives, it is next to the most essential in promoting success in surgery.

Emergencies.—In making preparation for an operation the entire field of possible accidents should be considered. There are some things that we consider, but we do not expect them to happen. And there may be obscure conditions that will give us serious trouble. We may neglect to get ready for such accidents. You know the unexpected always happens when we have been careless with our preparation. It may do for a surgeon operating in the hospital to neglect some of these things, when he can have an assistant step to a case and be on hand in a few seconds with the required material. The surgeon operating in the country ten miles or more from the base of supplies has to be more careful. With all the care and forethought we then sometimes find ourselves handicapped in an operation for lack of some thing that has been left at the office.

Preparing the Physical Condition of Our Surgical Subjects.—While the preparation of the physical condition of our patients may not require as much attention as those of the human surgeon, there are some cases where a little precaution on our part along this line is very essential. A good healthy physique of our surgical patients presents a resisting power against bacteria that is very desirable and often more effectual than the antiseptic we may use. I know when we have made the trip to the country to perform some surgery and find the subject is not in the best of health, we are tempted to go ahead with the work and take the risk. I think the best policy is to charge our client with the trip and take time to put our patient in physical condition.

I will give you a little incident that happened in my experience which illustrates the need of physical preparation before operating. I went to the country to trephine for a fourth molar tooth in the superior maxillary of a four-year-old colt. I found

the animal was running on grass and was as fat as butter. I hesitated a little, but finally concluded he could stand the strain of the operation. I prepared for the work. Cast the animal and performed one of the neatest and quickest operations I have ever done. When my patient got on its feet I found it was perspiring very profusely and scarcely able to stand. We moved it to a shed, where he went down with a severe case of azoturia and died in twenty-four hours. Yes, preparation of the physical condition of our surgical patients is often of the most vital importance.

The preparation necessary will be accomplished through medicinal treatment, dieting, exercise or rest as the patient's condition demands. The thoughts presented in this rambling paper have been suggested to me by my own mistakes and those observed in others.

If I have started a thought in your mind that will bring out some discussion, or that will send you home to your field of labor with new inspiration and a determination to place the surgical part of our profession on a higher and advancing plane, I will be well repaid.

IN an account of the annual field day of the Louisiana Sugar Planters' Association at the State Experiment Station, June 9th, published in the New Orleans *Daily Picayune*, of June 10th, which it states was attended by more than 150 planters from all sections of Louisiana, Cuba and Hawaii, we note that an address was given by Dr. W. H. Dalrymple, on the eradication of the tick pest from the state. Dr. Dalrymple gave his hearers a number of statistical facts on money spent, and what it had accomplished, and expressed his hope that the legislature would see fit to make an appropriation so that the work could be properly carried on, and stated that Secretary Wilson had asked for an extra appropriation of \$100,000 to complete the work. He told the members of the association that 138,000 square miles in the United States was about the area immune from the tick. He also pointed with pride to the fact that Louisiana-raised cattle brought 40c. more than other cattle sold in Chicago some months ago, which was evidence that Louisiana can produce as fine a cattle as any state in the union.

DIAGNOSING GLANDERS AND TUBERCULOSIS IN TRANSIT.*

TUBERCULIN AND MALLEIN TESTING AT THE MINNESOTA TRANSFER BY THE BUREAU.

BY R. H. HARRISON, D.V.S., INSPECTOR, B. A. I., ST. PAUL, MINN.

Inspection was inaugurated by the Federal Government at the Minnesota Transfer, January 2, 1909, for the inspection and co-operative testing of animals shipped inter-state, and exported to Canada. This was done at the solicitation of the several states receiving animals shipped through the "transfer," where the several trunk lines distribute their freight to each other's lines, the "transfer" being the clearing house of the ten trunk lines which enter St. Paul and Minneapolis.

There had been inspection and testing at the transfer for several years by certain veterinarians of the Twin Cities, but, owing to the difficulties of adjusting the fees and the methods of handling the stock, as well as for other reasons, the shippers and emigrants complained so bitterly to the transfer company and to the state authorities that the management of the transfer company discontinued all inspection and testing at this station September 1, 1908. Then the state veterinarians, and the secretaries of the Live Stock Sanitary Boards got together and went to Washington and petitioned the Bureau to detail an inspector for the work necessary.

Arrangements were made with the transfer company and temporary quarters fitted up for the work. Testing has been done in cars, which were switched several times during the test.

*Presented at the Annual Meeting of the Minnesota State Veterinary Medical Association at St. Paul, Minn., Jan. 12, 1910.

and in open pens and alleys. Federal law governing the transportation of live stock shipped inter-state, declare the carrier, *i. e.*, the railroad company liable to a fine if they convey or carry animals which are affected with an infectious disease; therefore, to protect themselves, the railroad companies, as a rule, require the stock to be inspected before loading and a certificate given by the local veterinarian. This certificate by law should accompany the way-bill, the shipper should have a copy in his possession, and a copy should be forwarded to the state to which animals are consigned.

It would seem to be a good business proposition for the veterinarians in this state, as well as other states, to acquaint themselves with the several laws of the different states so that if called upon they may issue a proper certificate or test which will be accepted by the states to which animals are destined.

I feel sure you will all agree that it is unprofessional and unbusiness-like and dishonest to charge fees for inspection and testing when the state to which the shipment is consigned does not require it; and to test cattle for Montana shipments and have the emigrant delayed here for a mallein test for his horses which is required for their entry into Montana; also to give an emigrant a certificate of inspection and assure him that it will carry him to his destination, when the veterinarian should know that if a mallein or tuberculin test is required the shipment is held at this point for testing. Again the veterinarians should know that local or state certificates for inspection or testing are not accepted at the boundry for export shipments to Canada.

The Canadian government requires a mallein test for horses, either at the line, before they are allowed to enter, or a test must be made by a veterinary inspector of the B. A. I. or made by veterinarians in each state appointed by the United States Department of Agriculture B. A. I., and their chart must be endorsed by a B. A. I. inspector, also designated by the Bureau to so endorse it.

Also the Canadian Government does not require a tuberculin test for emigrants' cattle, except carload lots for sale, and

thoroughbred stock for sale. Bureau mallein is the only preparation recognized by the Canadian Government. These points are mentioned for the reason that we are constantly receiving mallein and tuberculin test certificates for inter-state and Canadian shipments, and Montana is the only state that requires a mallein test at the present time; and some states do not require a tuberculin test. It would seem to be a good business proposition for the veterinary profession in this and other states to send to the proper authorities and line up to find out what is required by the different states, and keep in touch with changes in the laws; for the emigrant surely deserves some consideration as he pays to have his stock inspected or tested and surely should be recompensed accordingly; so that it will not be necessary to hold him at the transfer or elsewhere to complete his inspection or test his stock as the law requires.

THE BUREAU METHOD OF TUBERCULIN AND MALLEIN TESTING AT THE TRANSFER.—The animals are unloaded from the cars and placed in the stable to remain during the test without being moved and as far as is possible this is done early in the morning so that they may get quieted before the test begins. Feeding and watering is done at regular times in the stable; no grain is fed, hay only being furnished; quiet is maintained and no dogs are allowed and as few visitors as possible are admitted. The test for both horses and cattle begins at 2 P. M., continues at 4 and 6 P. M.; the injection given at 8 P. M. and the first temperature is taken, ten hours after the injection, at 6 A. M. and continued every two hours until five tests have been made. If an elevation of temperature is found after the fifth test or at the twentieth hour, the procedure is continued hourly until the temperature is lowered.

DISPOSITION OF PASSED CATTLE, HORSES AND REACTORS.—The reacting cattle are condemned and are tagged in the left ear with a United States suspect tag with a serial number, and are turned over to the State Live Stock Board for disposal. The passed cattle are tagged in the upper edge of the right ear, at the junction of the inner and middle third, with a United States

Interstate tag, Bureau of Animal Industry, with a serial number. A certificate is furnished to accompany the way-bill and triplicate forms are issued, one for the shipper, one which is sent to the state veterinarian or the secretary of the Live Stock Sanitary Board as the case may be, and the original retained and forwarded to Washington.

Reacting horses, mules and asses are likewise turned over to the Live Stock Sanitary Board, and horses passed for inter-state shipment are certified to in the same manner as cattle. A notation is made giving the character and size of swelling, if any, occurring at point of injection. The form Q. D. 20 used in the certification of mallein tests for Canada, has been alluded to.

The cuti-teuberculin test of Von Pirquet and the ophthalmic test of Wolff-Eisner and Chalmette are shown on some certificates furnished, but are not as yet accepted as reliable by any state authorities or by the government.

The quantity or dose of tuberculin used is 2 c.c. for an adult, adding 1 c.c. for every 500 pounds over 900 pounds. Calves are given 1½ c.c. In using tuberculin the injection is made just in front of the shoulder or on the top of the neck; in old bulls, where the skin is the thinnest about the shoulder.

In mallein testing the skin of the neck is cleaned, the hair clipped, and a 5 per cent. solution of carbolic acid used to make aseptic; the side of the neck not covered by the mane is injected so the "point" of injection will show; consequent plainly, the "point" will not become infected by the debris from the mane.

WHAT IS CONSIDERED AS A REACTION IN CATTLE.—Dr. A. D. Melvin, Chief of the Bureau of Animal Industry, advises: "The febrile reaction in tuberculous cattle following the subcutaneous injection of tuberculin begins from 6 to 10 hours after the injection, reaches the maximum 9 to 15 hours after the injection, and returns to the normal 18 to 26 hours after injection. A rise of two or more degrees Fahrenheit above the maximum temperature observed on the previous day should be regarded as an indication of tuberculosis."

Dr. John R. Mohler, Chief of the Pathological Division of the Bureau, in his paper on "The Tuberculin Test of Cattle for Tuberculosis," gives these valuable suggestions.

Eliminate from the test those animals that show temperature preliminary to test, which may be caused by advanced pregnancy, excitement of oestrus, concurrent diseases as inflammation of lungs, intestines, udder or other parts, retention of placenta, indigestion, etc. Heat, ill-ventilated stables, exposure to draughts, or cold rains, changes in feeding, watering and stabling, during the test.

In after temperatures a reaction is shown by an elevation of 2° F. One that does not go above 103.8° F. is not considered a reactor but may be viewed with suspicion.

The temperature reaction shown should have the *characteristic rainbow curve*. Suspicious cases in testing with us are classed as reactors, as interstate animals cannot be held in quarantine for a re-test; very often a careful physical examination helps our diagnosis.

In animals which are suspected of having been tested before being shipped and which are not accompanied by certificate or chart, a double or triple dose of tuberculin is injected and the temperatures are taken sooner than in the regular test.

It may be of interest to note the reports of tuberculin testing made by the federal government, states and others, with tuberculin furnished by the Bureau of Animal Industry, show that from 1893 to 1908, fifteen years, that out of 24,784 reacting cattle slaughtered, lesions were found in 24,387; a percentage of 98.39.

In mallein testing a reaction is shown by an *elevation* of temperature, beginning at the eighth or tenth hour after injection, and a continued elevation from the tenth to the sixteenth hour—2 to 5 degrees. Two degrees is considered sufficient to condemn. The swelling at point of injection is characteristic in reactions and is described as hard, abrupt, and painful, from 4 to 10 inches in diameter with corded veins extending prin-

cipally downward; this swelling increases from 24 to 72 hours and disappears in from 3 to 9 days. Severe lameness is often shown, dragging of the foot on the side which has been injected.

In non-reactions, slight or no swelling follows the injection, especially when the neck has been cleaned, the hair clipped, and the skin made aseptic and the syringe and the needle are sterile.

We have tried several methods, but have had better results and less swelling by observing cleanliness and letting the swelling, if any, absolutely alone and cautioning owner to observe the same rule. We are cautioned by the bureau to give due consideration to testing horses affected with pneumonia, pulmonary emphysema, bronchitis, lymphadenitis, alveolar periostitis, caries of the teeth, and melanosis.

WHY TESTING AT THE TRANSFER IS MORE RELIABLE THAN WHEN PERFORMED BEFORE ANIMALS ARE SHIPPED.—*First*—Because it is done at regular stated intervals, the animals are kept as quiet as possible, and the testers can give their individual attention and time to the work.

Second—“*As there are no fees, honest work can be done?*”

Third—Animals showing too high a preliminary temperature are not injected.

Why the test should be more reliable and trustworthy when it is done at origin—temperature shown on preliminary test caused by “carring,” change of feed and water, strange stabling, can be avoided. We very often find the temperatures shown in the preliminary test higher than that which is exhibited after the injection.

It would seem obvious that a preliminary temperature of 103° or over, would give no insight to a reaction by the temperature after the injection, even if it was elevated to a considerable degree.

If the tales told by the emigrants and shippers are true, in the testing of their stock, it would not only make us ashamed of the veterinarians who make the test, but would make us very suspicious of all private testing: *e. g.*, fine cattle from an adjoining state, tested and certificate given, show a temperature

of 99° flat at three intervals the day before, and 99° flat at intervals five times afterwards—same signed by an assistant state veterinarian—and others as bad or worse.

I would give a note of warning to veterinarians, that it is essential for them to make honest tests, because there is no knowing whether or not a re-test will be applied by the authorities of the state receiving animals, and in the event of a reaction, it will simply discredit the practitioner in the eyes of the authorities not only of *his* state, but those of the state to which the shipment is made; and, in addition, will not only hurt himself but the rest of the profession, and discredit the best method known of detecting and stamping out this scourge of the animal race.

THE annual meeting of the Missouri Valley Veterinary Association will be held in Omaha, Neb., July 6 and 7, 1910.

The committee on local arrangements are busily engaged assisting the officers of the association in perfecting plans for a large meeting. A pathological exhibit of fresh specimens at the packing houses of South Omaha will be a feature this year which will take the place of the clinic. The chief of the local branch of the Bureau of Animal Industry, Dr. W. N. Neil, and a committee from the Inspectors' Association are aiding the committee on local arrangements in this part of the program.

The forenoon of the first day will be devoted to routine business and reports of committees. The committees are expected to give some valuable information, especially those committees on infectious diseases, meat and dairy inspection, together with the president's address. The pathological exhibit will occupy all of the afternoon of the first day and the annual banquet the evening.

The entire second day will be devoted to the presentation of papers, their discussions and reports of cases.

The association has close to 500 members, with over 90 applications on file in the office of the secretary.

THE MICHIGAN STATE BOARD OF VETERINARY EXAMINERS will hold its annual meeting at Lansing the second Tuesday in August.

A PRELIMINARY REPORT OF THE BACTERIAL FINDINGS IN CANINE DISTEMPER.

BY N. S. FERRY, M.D., RESEARCH DEPT., PARKE, DAVIS AND CO.,
DETROIT, MICH.

As this is merely a résumé of a paper which will soon appear, the history of the disease as well as a review of the literature will be reserved until later.

Canine distemper is a disease characterized according to the textbooks as one which generally attacks young animals, and runs its course as a catarrhal fever, affecting all the mucous membranes of the body and often accompanied with certain nervous symptoms and skin eruptions.

The etiology is still an open question. The number of different organisms found which were said to produce typical symptoms of distemper are nearly as numerous as the investigators working on the subject.

During the past two years it has been my privilege to study and autopsy nearly three hundred dogs suffering from an acute infection, the symptoms of which were characteristic of distemper. During that period I have arrived at some conclusions rather opposed to many found in the textbooks on diseases of the animal. These conclusions were drawn after watching the disease in many of the dogs from the time of exposure to death, in being able to post them at any stage of the disease, and obtaining cultures from all the discharges and mucous surfaces.

I was very fortunate in having at my command an almost continuous epidemic, so that the disease was seen in all ages, stages and forms. So numerous have been the organisms described as the causative agents of the disease, one is very reluctant to come forward championing another; but as the organism to

be described has been found by me so constantly, and in pure culture so consistently, I feel that this fact should be published, giving others the opportunity to confirm, if possible, the findings.

While studying the symptoms, I was often struck by the fact that, contrary to the teachings of most textbooks, all dogs suffering from the disease, whether of the respiratory, abdominal or nervous type, would at some stage of the infection show symptoms of respiratory trouble. This led me to study more closely the respiratory organs, and it was here I found the organism under discussion.

Taking the disease in the early stages, I was able in almost every case to isolate the organism uncontaminated from the smaller bronchi, and often the trachea. Later in the disease I could often isolate the organism from the smaller bronchi in pure culture, but from larger bronchi and trachea I would almost invariably get a contamination with one or more of the pus organisms. In the last stages the secondary or terminal infections would extend to the lungs, when it would then be more difficult and at times impossible to isolate the germs.

Whether this organism is the cause of distemper remains to be proved. Out of 93 autopsies where the organism was isolated, it was found in pure culture uncontaminated in 71 cases. In 15 cases it was isolated from the blood. In 12 cases the organism was found contaminated in the smaller bronchi with the staphylococcus. In 9 cases it was found associated with organisms other than the staphylococcus. In 2 cases where the organism was isolated the exact bacterial findings have been lost. In a few cases I have seen the organism in smears from the lungs, but was unable to isolate it or grow it.

The serum of dogs suffering with the disease has always given a positive agglutination with the organism in question, while normal dogs used as controls were invariably negative. Inoculating young animals with live cultures of this organism have produced in several instances a "symptom complex" similar to distemper. In fact I am positive I have experimentally produced the disease by artificial inoculation. With this or-

ganism a vaccine has been made, which has given favorable results.

As a result of my autopsy findings, I have come to the conclusion that the eye, nose, skin and nervous symptoms are the results of secondary infection, and that death in most cases is the result of these secondary invaders. If this be true, the vaccine will have little or no direct effect on them.

In looking over the literature on canine distemper, I have not been able to find a description of an organism similar to this one. The characteristic of the organism of Copeman, Galli-Valerio, Lignieres, Phisilix, Hewer and others do not correspond with the organism.

CULTURAL CHARACTERISTICS OF THE ORGANISM UNDER DISCUSSION.

Short, narrow bacillus, usually found single, but often in pairs.

In liquid media may be found at times in long chains or even filaments.

In bouillon culture grown directly from the dog, the organism may be found larger and more oval in form.

Does not take the ordinary stains as readily as most bacteria.

Stains best with Loeffler's methylene blue with characteristic appearance.

The organism is actively and progressively motile.

PLAIN AGAR STROKE.

Twenty-four hours at 37° C.—Moderate growth, filiform and slightly raised. Surface moist, glistening and smooth. Growth translucent and of sticky consistency. No odor as a rule.

Seventy-two hours—Growth does not tend to spread except near bottom of tube in contact with water of condensation. As growth ages it has a tendency to become slimy, but retains its other characteristics. Stale or musty odor at times.

PLAIN AGAR STAB.

Twenty-four hours at 37° C.—Filiform growth better near the surface. Surface growth moderate, raised and restricted.

Forty-eight hours—Growth retains form with surface spreading slightly.

Seven days—Surface growth tends to be restricted, although some stains spread gradually. Growth is slimy and smooth.

Thirty days—Characteristics not changed. Growth increased.

POTATO.

Twenty-four hours at 37° C.—Growth rather abundant. Surface uneven, raised, moist, glistening, and contoured. Consistency, sticky and of a light tan color. Decided odor of stale bread. Medium, slightly darkened.

Seventy-two hours—Surface of medium nearly covered with growth which has become slimy.

Forty-eight hours—Growth thicker, with tendency to spread. Color darker tan. Medium much darker.

LOEFFLER'S BLOOD SERUM.

Twenty-four hours at 37° C.—Growth is scanty, filiform, smooth, moist, glistening and nearly flat. No color. Medium not colored nor liquefied.

Forty-eight hours—Growth has increased slightly. Characteristics have remained the same.

Thirty days—No special change in growth. Medium browned but not liquefied. Water of condensation decidedly alkaline.

GELATIN STAB.

Twenty-four hours—Filiform growth which is best on top. Surface growth restricted. No liquefaction. Medium not changed.

Thirty days—Characteristics remain the same. No liquefaction.

NUTRIENT BROTH.

Twenty-four hours at 37° C.—No surface growth. Moderate clouding which is persistent. Compact sediment which is easily broken up on shaking. Odor rather stale.

Forty-eight hours—No surface growth. Clouding has increased. Decided stale odor.

Seventy-two hours—Cloudiness increased. Sediment rather viscid. Odor decidedly stale, which becomes putrefactive at times.

Three weeks—Sediment decidedly viscid.

KOCH'S BLOOD SERUM.

Twenty-four hours at 37° C.—Growth scanty, filiform, smooth, moist, glistening and slightly raised. Growth light tan color. Musty odor. Medium not colored not liquefied.

Forty-eight hours—Growth increased slightly but no other change.

Seventy-two hours—Medium not liquefied. Water of condensation decidedly alkaline.

Three weeks—No change.

LITMUS MILK.

Twenty-four hours at 37° C.—No change.

Seventy-two hours—First appearance of change. Upper half-inch of medium has taken a deeper blue color.

Five days—Blue color extending lower into tube.

Fourteen days—Color entirely disappearing from the bottom of the tube. Color at top deeper blue. Brownish, slimy sediment in bottom of the tube.

Three weeks—Some stains. The color will have entirely disappeared from most of the media.

MILK.

Twenty-four hours at 37° C.—No change.

Seventy-two days—No coagulation, no acid. Sediment started to form in bottom of tube.

Fourteen days—Color of media light tan. Becomes slightly translucent and clouded. Sediment is thick and slimy. Odor stale.

Dextrose bouillon, mannite bouillon, maltose bouillon, saccharose bouillon, lactose bouillon, glucose bouillon, grown in fermentation tube 7 days at 37° C. Media in open arm clouded. No visible growth in closed arm. No fermentation of gas. Media alkaline, not acid.

USCHINSKY'S SOLUTION.

Three weeks at 37° C.—No growth.

COHN'S SOLUTION.

Three weeks at 37° C.—No growth.

DENHAM'S SOLUTION.

Seven days at 37° C.—Fair growth, with sediment in bottom of tube. Test for indol negative.

COLONIES ON AGAR.

Twenty-four hours at 37° C.—Very small, round, sometimes not much larger than a pin point. Translucent and slightly raised.

Forty-eight hours—About size of a pin head. Round, convex, smooth, amorphous and translucent. Edge entire.

Seventy-two hours—Colony has grown larger, but characteristics about the same. Edge may have become undulate.

Seven days—Colony much thicker; grumose in centre. Edge undulate.

COLONIES ON GELATINE.

Similar to those on agar. Medium not liquefied.

BACTERINS AND VACCINES IN VETERINARY PRACTICE.*

BY DR. T. B. ROGERS, WOODBURY, N. J.

I believe in starting fair. I am here as a representative of a commercial house, but if you expect to hear from me any mention of that house's products you are mistaken. We do not do our business that way. We keep our science and our business separate. If we want to advertise our goods we do it through the usual and legitimate methods. I am not here to advertise or sell anything.

When I was asked to give this address, the idea came across me, in attending a great many veterinary meetings, that the biological side during the last few years has been very largely dwelt upon. You could shut your eyes and imagine you were attending a meeting of bacteriologists.

I want to say to you in the first place that it is time that the practitioner asserted himself, with all due respect to the laboratory man the practitioner is the court of last resort—I can say this with the more grace because I am connected with a large bacteriological laboratory. At a meeting of the Gloucester Co., N. J., Medical Society, Professor Hobart C. Hare, of Jefferson Medical College, Philadelphia, Pa., made the assertion "that the jury of last resort, in matters medical, was composed of practitioners," and there is much truth in the assertion. No matter what the laboratory findings, if they don't work out in practice. Will the laboratory men present pardon me if I spend a few minutes in classifying this class of remedies, for they fall readily into a useful classification.

We have then: 1st. *True Vaccines*: Attenuated cultures of living germs. *Examples*—Small-pox vaccine, anthrax vaccine.

* Presented at the January meeting of the Minnesota State Veterinary Medical Association.

2d. *The Bacterins*. Killed cultures of bacteria, the vaccines of Wright Bacterins. *Examples*—Staphylo-Bacterin, Strepto-Bacterin. It seems to me that a better nomenclature for these classes would be to call the first class, Bio-vaccines—Living vaccine, and the second Necro vaccines.

3d. *The Antitoxins*, whose function is to neutralize toxins elaborated by pathogenic germs; their name, too, is somewhat of a misnomer, as they probably have the other side action which tend to the improvement of the condition of the recipient. *Examples* Diphtheria Antitoxin, Tetanus Antitoxin. These agents produce a passive immunity, *i. e.*, they introduce into the blood foreign material which renders the host less susceptible to the poison of the germ products they antagonize. It is worthy of notice that the bacterins—killed cultures, produce active immunity, *i. e.*, they stimulate the cells and sera of the host, raise the opsonic index and at once increase the phagocytic power of the cells, the bactericidal power of the serum, and still further prepare the invading germs for destruction by the phagocytes.

4th. *The Toxins*. Poison products of the bacteria. *Examples*—Old tuberculin—mallein. At present the use of this class in veterinary practice is confined to purposes of diagnosis. They produce a three-fold action when injected into patients suffering from the invasion of their special germ: 1. A thermic reaction; elevation from a standing temperature. 2. A local reaction; a characteristic swelling at the point of injection. 3. A constitutional reaction; symptoms of illness, anorexia, horripilation, general malaise.

I have lately had some interesting experience regarding the polyvalency of certain sera.

Thus it has been shown that the canker of pigeons is amenable to treatment with diphtheria antitoxin, and that diphtheria antitoxin possesses immunizing power in equine influenza. It is also curative in certain cases of canine distemper. On the other hand a veterinarian having charge of a large Philadelphia stable who gives each new horse a dose of tetanus antitoxin, is assured that this antitoxin immunizes against the common disorders con-

tracted in shipping. And, au contraire, some letters recently came to my desk claiming that influenza antitoxin was useful in the treatment of tetanus.

I cannot explain these somewhat curious conditions. A medical man, at one time interne of a large charitable hospital informs me that during his term he treated his diphtheria cases with potassium chlorate, glycerin and tincture of iron, and his whooping cough cases with diphtheria antitoxin. He claims that the serum was both palliative and curative in whooping cough.

I should like to say a word with regard to some recent work being done by the Bureau of Animal Industry with regard to getting a standard for veterinary antitoxin. It is very desirable to have a standard for it, but I wish to call your attention to what I think is a mistake in what they wish to do in this regard. We have all of us for years been immunizing horses against tetanus with an antitoxin that would not probably reach more than fifty American units. In our laboratories we have used it for ten thousand cases and never had a case of tetanus. I have charge of the public service stables of New Jersey, every horse which receives an injury of any kind is given at once an immunizing dose of tetanus antitoxin.

A great many of those horses are in a tetanus district, and before that method was instituted many cases occurred. In the six years this method has been followed, we have never had a death from tetanus and we are giving a serum that did not read above fifty American units. Now if the Bureau is going to impose 1,500 units, it seems to me they are going to ask you to pay a great number of times for your protection, and I think the science in all your serum treatment is to get them so cheap that you can make them of universal use. We have a fixed policy wherever we get a wound or whenever we do a surgical operation. We give the antitoxin and put it in the bill, and I think the profession should go a little bit slow before accepting that arbitrary standard. To-day in Philadelphia we are trying to demonstrate experimentally in the horse (and it has never been done before) the amount of antitoxin that is needed to protect.

Another word I should like to say to you in passing. It has been a matter of regret to me to notice that in the East a great many agricultural experiment stations are establishing small laboratories, and a great many of those laboratories are not in veterinary charge, and in my country the results are bad. The other day I received a letter from a farmer stating that he bought 300 c.c. of our tuberculin from a druggist, and he was testing his own cattle, under instructions he had received from the University of Wisconsin, and disposing of those cattle as he thought fit; and he wanted to know how long the tuberculin would keep, whether the instructions received in Wisconsin were correct, and altogether he was in that frame of mind of every farmer who is his own horse doctor. I think when you can get a state laboratory under proper veterinary supervision, it is a good thing; but I think the profession should protest against the establishment of state laboratories under lay control where the veterinarian is crowded out. I am the veterinarian of the State Board of Health of New Jersey. I have no control over tuberculosis. We have a state tuberculosis commission, purely under lay control. It consists of a retired farmer who kills the cattle, the director of the State Experiment Station, and a retired M.D.; and it results in cattle shipped into the state being tested in such wise that the test is a farce.

With regard to the bacterins, they have come to stay, but I sometimes think that the bacterial therapy is in more danger from its friends than from its foes. A good consistent enemy, laying constantly on one's flank, like a staunch hound, is often a friend in disguise; he acts the part of Kipling's yellow dog Dingo. (You may remember that the kangaroo desired to be run after, and Dingo went on the job, chasing him until the kangaroo developed his marvelous hind legs and jumping agility.) Too good a friend, however, often gets into trouble by being too enthusiastic with new remedies; he often fails to distinguish between "post hoc" and "propter hoc."

The up-to-date veterinarian will use the staphylo, strepto, and pneumo bacterins, and will save many cases he would otherwise

lose, but he will fit the remedy to the case and will not condemn this branch of therapy because he fails occasionally to get results. Gentlemen, it is just as well to look the matter squarely in the face.

You may get two cases bacteriologically and clinically similar and, getting good results in one case, fail in the other. The thinking man will accept these results as the vagaries of an infant science, and not blame the method.

With regard to the use of stock vaccines, it has been shown that stock cultures of the gonococcus give better results than polyvalent preparations, and I see no good reason why stock cultures of polyvalent streptococci and staphylococci should not take the place of those made direct from the patient. The element of promptness and convenience comes in play here.

While on the subject of the treatment of fistulous withers and poll evil I can strongly recommend that you pack the cavities with a paste made by mixing solid chloride of iron, rye flour and water. A stiff yellow paste results which becomes darker with age and also thinner, sometimes requiring the addition of more flour. With time too some others develop, giving the mixture a "fruity" odor. Soft lamp wicking impregnated with this mixture is packed into the wound and left there for 48 hours. Usually the slough comes out with the packing, and the remedy does not injure living tissue. Finally, remember that the bacterins are the best and latest biological remedies in diseases where staphylococci and streptococci are in evidence. You can get results with them that are unattainable by other means, *but you will meet occasional failures*. It is not necessary to say that the educated veterinarian will not disown a remedy because he occasionally meets with a failure, the cause of which is beyond his ken.

DR. WILLIS L. BRENTON, second son of Dr. S. Brenton, the well-known veterinarian of Detroit, Michigan, was united in marriage to Miss Frances A. Hinks, of the same city, at her parents' home on Wednesday evening, June 15, 1910. After a wedding trip to Duluth, they will reside in Detroit, where he is associated in practice with his father.

DRAFT HORSE BREEDING IN AMERICA.*

By E. T. ROBBINS, B.S., M.S.A.

The breeding of draft horses is gradually assuming great importance in America. Stimulated by the appreciation of prices during the last ten years, the business is attracting the attention of the most skillful stockmen to a far greater extent than before the panic of the nineties. Prices for draft horses are now higher than they have ever been before and offer quick and sure returns. Horses of acceptable type are certain of a ready sale as soon as they reach a workable age. Nothing depends on performance further than that they pull true and move freely and straight, so the probability of satisfactory returns from every colt matured is greater than with any other class of horses. Furthermore, accidents are less likely to happen to draft colts than to those of more nervous temperament, so that while blemishes are less objectionable than on light horses, wire marks and similar disfigurements are also less common. A draft colt from sound parental stock has the best of chances to develop into a sound and unblemished horse.

That the business of producing draft horses is to become a permanent one in this country admits of no doubt. Auto-trucks promise but little competition. Simultaneously with their introduction, the number of draft horses in the United States has steadily increased and prices have mounted to loftier and loftier heights. The past season on the Chicago market four-year-old geldings weighing near a ton have sold up to \$400 and hardened horses of equal quality have brought \$100 more. Of course these prices have required unusually good individuals, but prices \$100 less look good and have been freely paid, with buyers complaining that there were not enough of these good kinds. When it is

*Read before the twenty-seventh annual meeting of the Illinois State Veterinary Medical Association.

considered that these same horses earned their board at farm work from the time they were three-year-olds and subsequently paid in work for part of their earlier keep before they finally left the farm, it is evident that they made money for their breeders. Still many failures have been registered in this business, principally because of the mistakes of inexperienced breeders.

Probably the most common of these mistakes is the failure to feed draft colts liberally enough to support the growth they should make. Many 1,300 and 1,400-pound horses are the offspring of ton stallions and big mares, but failed to attain the size of their parents because of insufficient nourishment. A draft colt attains fully half of its ultimate size during the first year of its life. This means that the colt which is to make a ton horse must weigh 1,000 to 1,200 pounds by the time it is twelve months old. The colt that is scantily fed the first year will grow somewhat longer than the well-fed colt, but it will never overcome the setback from early privations. One of the oldest commission men in Chicago, Col. John S. Cooper, recently remarked to me that he was satisfied the most common cause of deficient size in draft-bred horses was poor feeding during the first winter. It has been the experience of the British government that Shire horses in India quickly degenerated in size when subjected to the scanty pasturage of the East. On our own western ranges, in a few favored localities where grazing is the best and alfalfa hay is used to tide stock through the winter, horses have been grown to a ton in weight without a bite of grain; but in less favored localities, where feed is poorer, horses of the same stock mature at 1,300 to 1,400 pounds.

Liberal feeding of draft-bred colts is imperative and the sooner breeders recognize this and supply the feed to make big growth, the sooner will disappointments diminish in number. The idea that a colt should be maintained principally on rough feed so as to develop his digestive system has been advanced by many breeders as a reason for not pushing their colts. It seems more likely that heavy feeding on a nutritious ration would develop the digestive powers and adapt them most perfectly to the

heavy grain feeding that must be practiced with mature draft horses at hard work. Certain it is that the draft colt during its first year will use to advantage all the oats and bran it will clean up readily three times a day. When so fed and allowed free exercise it will build up the best of bone and feet and strong vital organs while hastening forward to large size and early maturity. The French are among the best feeders in the world and that is why two-year-old Percherons frequently crowd close to the ton mark. The most successful breeders of pure-bred horses in this country are those whose settled policy is to push their colts summer and winter from the start. They have found that the colts that show up well as foals are the most likely winners as yearlings, two-year-olds and older horses. There are mares and stallions in America that have been prize-winners every year from foalhood, and now at eight and ten years old are sound and clean as a hound's tooth.

Two things are especially menacing to the success of draft horse breeders—impotence in stallions and abortion in mares—and of the two, the latter is the more discouraging. A ready remedy which wonderfully increases the foal-getting powers of stallions has been found in common, everyday work. No draft stallion is too good to work and when he is put to daily use in the harness he gains vigor and vitality while keeping out of mischief and commanding regular feed and care. A stallion is not a bad animal to work and one that is so handled is far more sensible and easily handled at stud duties. With his system in good health from the active life throughout the year, his procreative powers are at the maximum. Percheron stallions do regular work in France and they cover twice the mares and are surer foal-getters there than here. Here is an example of what a working stallion can do. In 1907 the imported Percheron stallion Nicolas, owned in Madison Co., Nebraska, made 199 services, which, by the use of the impregnator, mated 262 mares and resulted in 213 foals. He is a horse weighing 2,225 pounds fat, and 1,925 in hard working condition. He works on the farm every day. Other examples might be adduced to show the benefit from working draft stallions.

A more puzzling proposition from a breeder's standpoint is abortion. With all that veterinarians have found out about this trouble and all the preventive medicines that have been recommended, it continues to make tremendous inroads on the prospective foal crop from draft mares. Contagious abortion may be responsible for some of the blighted hopes of draft horse breeders, but most of the premature delivery of foals seems to be independent of any infection. Some breeders reported last spring that they lost all their foals, and every spring pitiful reports of losses from this source tell of the uncertainty attending efforts to get a crop of foals. Preventive medicines are useless in many cases because of the suddenness of the mishap and even when they are used they are frequently of no apparent benefit. Something more efficient than anything yet known is needed by breeders, for aside from the cases where treatment is not begun in time, there are still numerous instances where it seems to be of no avail.

The experience of breeders seems to point to more benefit from proper care of draft mares than from medicines. Probably in inexperienced hands as much damage is done by medicines as would occur without their use. Medicine for a pregnant mare must be given with the best of knowledge of its effect and its proper use. Proper care of the mare should be a simpler matter, provided the best kind of care is known. Unfortunately there is some doubt about this and abortions occur under all conditions.

The best of success in the long run seems to come to those who make a practice of working their in-foal draft mares. Mares that work every day are more certain to receive regular exercise and feed and care than if they are treated in any other way, but they must be worked by careful drivers or else foals will be lost by strains from handling heavy loads or working in the mud. Fortunately in early winter, when mares due to foal in the spring must be handled most carefully, the roads throughout the corn belt are comparatively good and the work is such that horses can be loaded within their capacity. Working mares keep their systems in the best of tone and their muscles strong and tense, and this not only helps them to foal with ease but favors the normal carrying of the foetus.

Idle mares that are kept in the stable under the mistaken idea that they are too precious to be allowed the risk of exercise are the greatest nuisances of all. Those that run in the pasture every day, or even day and night, apparently do themselves injury from excessive violent exercise, often over slippery ground, whenever the impulse to run and frolic possesses them. Draft mares seem to be more subject to injury in this way than light mares and steady moderate work in the collar is the best way to prevent it. It is a common experience of breeders to have mares that worked through the winter carry a larger proportion of foals the full time than those that were idle.

But not all mares can be worked through the winter on farms where the bulk of the summer's crop is put in and tended with brood mares. At the present time breeders are more in need of advice as to a successful way to handle their mares to prevent abortion than of any other thing pertaining to their business. Veterinarians need to know more about the trouble than is now known in order to give workable advice. A united effort to trace the causes of abortion and to discover ways of fortifying the draft mare against them should be productive of much additional light on this perplexing question.

During the season just passed an unprecedented number of draft mares and stallions have been distributed among the farms of the United States. There has been a widespread movement toward the better class of draft breeding stock. Many men are now in the possession of their first registered draft horses and are likely to lose a large proportion of foals from mistaken efforts at kindness to their mares. But the American farmer is surely destined to become in time a great breeder of draft horses. No other result can logically follow from the vast number of pedigreed mares recently taken to farms. From an importing nation we will become a draft horse producing nation. A timely attention to this growing business suggests that especial study be given to the conditions affecting the health and breeding powers of draft stallions and mares.

THE VETERINARIAN AND THE MORAL LIFE.

AN ADDRESS BEFORE THE GRADUATING CLASS OF THE CHICAGO VETERINARY COLLEGE, TUESDAY, APRIL 5, 1910. BY REV. JOHN BALCOM SHAW, D.D., LL.D., PASTOR, SECOND PRESBYTERIAN CHURCH, CHICAGO, WITH AN INTRODUCTORY NOTE BY D. ARTHUR HUGHES, Ph.D., D.V.M.

Only the other day I read in one of our papers the report of a conversation between a man and his wife that ran something like this:

"Dear, do you remember the night I proposed to you?"

"Indeed I do. How could I ever forget that?"

"And do you recall that after I proposed you sat a whole hour and never said a word?"

"I do."

"Well, dear, that was the happiest hour in all my life."

To-day, gentlemen, I have no doubt that for many of you, if not for all, this is a peculiarly happy night. Especially for those, if there be such, who are just getting through by a close shave. They are like the little girl, perhaps, who, when the conductor, not knowing whether he should collect a fare or not, asked her how old she was, replied, "I'll pay my fare and keep my statistics to myself." They will take their diploma and say nothing about grades. I congratulate them. I congratulate you all. It is a fine thing to be done with your work and step out into the active work of your profession.

I congratulate the world, too, upon receiving so many professional veterinary surgeons to-night. An old farmer in New England fell desperately sick and, despairing of his life, his family urged him to send for a physician. "No," said the old man, "I want to die a *natural* death." How many animals will fail to die a natural death when you all get down to work, and it will be a good thing.

And, still again, I offer my congratulations to the school from whose classrooms you now go forth. If I may judge from your appearance, and from a few of your number whom I have come to know and admire, you will do your alma mater no dishonor out in the world, but in many centers of the country pursue your work to her credit and honor.

Having spoken this word of cordial congratulation, let me now give utterance to a word of counsel. Coleridge once asked Sidney Smith if he had ever heard him preach, and quick came the answer: "Coleridge, I never heard you do anything else." Who could expect a preacher to talk to a graduating class without doing a little preaching? Here it is then and in few words:

I. Do what you can, young gentlemen, when out in the world, to exalt your profession. It has not been long regarded as such. Others have in recent years lifted it to a new level. Keep it there. Nay, lift it still higher. To accomplish this, you must always do honest work. Be self-respecting. Keep yourselves clean. Command the confidence of the people with whom you deal. Have the highest ideals for your personal life and for your profession. Throw your best effort into your work, and show men that it is not a trade but a science.

II. Undertake to serve the community in which you settle. Everybody needs a side interest to keep his life fresh and wholesome and well-balanced. No better pursuit could you adopt outside your profession than civic interest and improvement. Don't train with any but the highest class in the towns where you settle. Stand on the side of right and truth and purity, whatever it costs you. You will be the gainer rather than the loser in the end by doing so. Never wink at evil or allow yourselves to grow indifferent to it. Every man of you ought to plan to be a high-minded moral leader wherever you may practice your profession.

III. Be true to yourselves under all circumstances. There is a form of self-seeking most reprehensible and no man should indulge in it for a moment. When Blücher came to London after the battle of Waterloo, among other sights they took him up to the dome of St. Paul's Cathedral that he might look out upon

the world's capital from the best possible vantage ground. When he beheld the view, the narrator tells us, he leaned over the railing as if he would break it down, and with the blood reddening his face, exclaimed, "Oh, what a place for plunder!" That is some men's only feeling as they look out into life. What can I get out of it of gain or reputation or comfort or other personal advantage? Now what can I put into it. Stamp any such impulse out at the start, young gentlemen. Unless you dethrone your lower self, it will trouble you all your lifetime.

But while this form of self-seeking is not to be allowed, there is another kind which you must cultivate. Seek the ennoblement of self. Be painstaking about your character building. As the old adage runs, "Reputation is what you seem to be; character is what you are."

"Bright is the ring of words when the right man rings them;
Soft is the fall of songs when the singer sings them.
Still they are caroled and said, on wings they are carried
After the singer is dead, and the maker buried."

IV. Set yourselves to honor God, personally and professionally alike. It is too late to apologize for such an injunction as that. There are no atheists to-day. No one of any standing thinks of denying the existence of his innate religious nature. What folly that would involve. If you want to have an optimistic, useful, achieving resultant life, you must recognize and set yourself to obey the voice of God within. A man with an unruly, unheeded conscience is of all men to be pitied.

These are my ambitions for you men of the class of 1910; this the program I hand you to carry forth into the world with your diplomas. Would that you might take it and begin at once to follow it.

Shreiner has a legend of a new-born babe whose cradle was visited by a bright succession of angels. First came the angel of fame saying to the mother who stood hard by, "If I touch your child, all men shall honor him"; and next the angel of love, who promised upon touching the babe to give him the power to win the hearts of all men; then the angel of wealth, of happiness and

of health, each making its offer. But the mother waved all of these away. Finally, an angel appeared who said: "If I touch your babe, he shall have the power to choose the highest ideals and to carry them into practice," and the mother seized the angel, crying, "Touch, Oh touch, my child!"

Would that one higher than an angel might give you all such a benediction to-night as would set your faces toward the highest goal and ultimately bring your feet thither.

[NOTE.—Dr. John Balcom Shaw is one of the most fluent and stirring preachers in Chicago, a city which, like New York, is full of eloquent men, who, in Solomon's words, are "masters of assemblies." The speech reported here is not given verbatim, yet what there is of it is marked by literary flavor; by strong, practical, manly sense; by an appeal to the best in the mind and in the sensibilities. Above all, by its appreciation of the usefulness of the modern veterinarian to the communities. The position and power of Dr. Shaw may be better understood when it is remembered that he is better reimbursed for his services in this city than are the secretaries in President Taft's cabinet, and that, to-day, he is occupying, as an exchange, one of the greatest pulpits in the city of London, the metropolis of Great Britain.]

The commencement exercises of the Colorado Agricultural College were held in the college chapel, Ft. Collins, Col., June 2, 1910. The degree of Doctor of Veterinary Science was conferred upon twenty who had completed the veterinary course. The following are the names: H. S. Akin, E. H. Aicher, Y. R. Balmer, M. R. Blackstock, A. J. Bloomfield, L. A. Brown, P. H. Cottrell, V. E. Cram, W. T. Cuthbertson, A. A. Hermann, A. H. Hinken, F. D. Hylton, E. A. Meyer, G. McClain, J. C. Pace, W. Stewart, R. L. Van Sickle, W. G. Wadleigh, I. M. Watts, A. W. Whitehouse, V.S.

IN renewing his subscription to the REVIEW, Dr. S. H. Gibson, of South Mountain, Ont., Can., says: "I am exceedingly pleased with the REVIEW, and do not know how anyone would attempt to practise veterinary medicine without it."

"VETERINARY PROFESSION."*

BY G. F. RENNICKS (O.V.D.), SAUK CENTER, MINN.

While my subject is not a technical one, I feel that a few words from an old practitioner may be of interest to this Association, especially as they are the result of twenty-four years of active practice, in more than one section of this country. With this experience, it is needless for me to say that I have met with many peculiar conditions, and peculiar men, not only among the laity, but among the profession. It is questionable, in my mind, if there are more scrapping tools in evidence, or more hammers ready to knock and nail a brother's coffin together than are among our profession. Brotherly and professional love among our profession is buried under professional jealousy. We are ready to condemn a fellow veterinarian without asking ourselves if we can do differently. While our view on matters of ethics in many cases are dependent largely on our financial condition, we should remember that we owe the other veterinarians, the same consideration that we expect.

We are all anxious to make as much from our practice as it is possible, and in so doing we must not forget honesty and ethics, nor the fact that we should work for the interests of our profession.

Some men, however, are always ready to see evil in others, anxious to keep the other fellow down in the mud, taking advantage of every little thing to undermine or create suspicion. This may, perhaps, be due to the man's nature or because he does not properly weigh his words or hasty actions. It is the older practitioner who should be required to educate the young man or the new-comer entering into this profession in the state.

*Presented at the January meeting of the Minnesota State Veterinary Medical Association.

All veterinarians locating in Minnesota should, if their diploma is shown, be admitted to practice until they can take the examination. We know that considerable ill-feeling and petty jealousy has been shown such men, and that complaints have been made that they were violating the law, and for this reason should be barred from practice, until such time as they have passed the examination of the State Board of Examiners.

This is a wrong attitude to take. What can a young man do if he is compelled to refrain from practising until the next examination? It is not his fault if the Examining Board meet only twice a year. In my own case, after settling in Minnesota, I was prosecuted for illegally practising, simply because my diploma had been destroyed by fire and a duplicate one had not been obtained. The result was that it cost me a large amount of money, and the Examining Board, through its secretary, paid out a hundred dollars for nothing. The prosecution was the result of jealousy on the part of another practitioner. No good was accomplished. There are plenty of non-graduates who could be prosecuted.

But, apart from this, let me give the members a little advice. Do not expect the other men to do better than ourselves. The man who tries to think only good of every brother will not suffer from unprofessional acts from others. The young man should not sneer at the older competitors, because he does not use all the recent medicines or treatments.

Let them remember that when we began practice we brought with us from college the latest treatments, and experience has taught us which ones we have the most success with. Let no man carry the notion that his knowledge is above all others.

One man may lack experience in some certain things, yet in others he may excel. These meetings are for the good of individual members, and should be attended by all if we would advance in knowledge.

In conclusion, let us do unto others as we would that they should do unto us.

REPORTS OF CASES.

DISARTICULATION AND DISPLACEMENT OF THE PETROUS PORTION OF THE TEMPORAL BONE IN A DOG.

By A. T. KINSLEY, M.Sc., D.V.S., Pathologist, Kansas City Veterinary College.

The following case was an interesting one to those having the opportunity to observe the animal while alive, and it was thought that possibly a report of the case would be of value and interest to others.

The subject was a male fox terrier dog, about one year of age, with a history as follows: On or about the 12th of May the dog was observed by the owner to carry its head to the right and to continually strike his left ear with his left foot. At the same time the left eye was extensively congested and appeared to bulge from the orbit. The dog was hyper-sensitive and very irritable. The above symptoms became more aggravated and the dog was placed in the Kansas City Veterinary College Hospital for treatment, on the 16th of May, at which time the head was continually turned to the right with the nose projecting downward and backward. The animal still persisted in striking the left ear with his left foot. There was slight inco-ordination of movement, but the eye at this time had been relieved of the congestion. A positive diagnosis was not made at the time. The animal was carefully studied and on the 18th inst. it was concluded the dog was suffering from the effects of a tumor within the cranial cavity, abscess formation or an injury. Inco-ordination became more and more marked; finally the dog was unable to rise and could not stand without assistance when raised upon his feet. On the 17th it was noted that deglutition was difficult, and the 18th the pharynx was apparently paralyzed, the dog being unable to drink, though the muscles of mastication were apparently normal. No treatment except small doses of chloral-hydrate was administered.

The dog died on the evening of the 18th and was autopsied on the morning of the 19th. All internal organs were found normal, excepting hypostatic congestion of the left lung. On examination of the cranial vault, an extensive extravasation of blood was found on the left side of the inferior cervical region and extend-

ing up to and involving the area around the parieto-temporal conduit. From the appearance of the extravasate it had been the result of a hemorrhage that had occurred about a week prior to this time. On closer inspection it was found that the petrous portion of the temporal bone was separated from the basilar portion of the occipital as well as from the parietal bone, the squamosal portion of the temporal bone and from the sphenoid. The hemorrhage apparently had been the result of injury to the tem-



FROM PHOTOGRAPH OF DOG SHOWING TYPICAL ATTITUDE.

poral vein just within the parieto-temporal conduit. On opening the cranial cavity a considerable quantity of blood was found laterally and inferiorly to the cerebellum and extending inferiorly and surrounding the left crura cerebri.

By a consideration of symptoms and post-mortem findings it was concluded that the cause of the trouble was disarticulation and displacement of the petrosal portion of the temporal bone accompanied by injury to the temporal vein.

A FEW OF THE INTERNAL PARASITES OF THE HORSE AND SHEEP.*

By DR. C. C. STEVENS, Sandusky, Mich.

My first case was a four-year-old Western horse. I received a call from a Mr. Stone on the morning of April 23, 1909, and found on arrival a horse that had been ailing for about three weeks, but unusually wrong on this morning. And I was puzzled, as the symptoms I obtained did not give me conclusive evidence upon which I could base a diagnosis.

* Presented to the Michigan Veterinary Medical Association, January, 1910.

The symptoms were paleness of mucous membranes with a fairly strong pulse (38 to 40); respiration regular. One eyelid drooping, also one ear, and patient would stand wherever left on releasing hold on halter. The temperature was $105\frac{1}{2}^{\circ}$. After I finished my examination I told my client I could not make a diagnosis of the case, but that there was some constitutional trouble which was causing the extreme rise in temperature. So I advised giving nuclein solution in order to reduce the temperature through its phagocytic action on the blood, so I added 1 oz. normal saline solution to 1 oz. nuclein and gave intravenously; turned horse back in stall and went home, a mile, and had only arrived when I received a call the horse was dead. I had only one way left to vindicate myself, and that was to hold a post mortem and trust to luck.

So my assistant and I went back, and on post mortem found a yellow serous fluid in the abdominal cavity and about a quart in the thoracic cavity; all other organs normal in appearance.

On opening the stomach we found about sixty strongylus armatus or lumbricoids, in the small intestines about eighty more and thirty-eight tape worms, and in large colon thousands of worms attached to mucous coat of bowel in clusters like grapes, from one-half to two inches long. In the entire alimentary tract there was not over one bushel of food.

My next case was in a seven-months'-old colt, which fortunately was dead before I arrived, so held post mortem for owner's benefit (as well as my own). The small intestines were completely plugged for six or seven feet, and black, and contained about ten or twelve quarts of strongylus armatus (lumbricoids), also over eighty tape worms, and the stomach was completely filled with the strongylus armatus.

On May 13, 1908, I received a call to go and see some sick lambs, as the owner had lost some twenty the last few days, and more were sick. On arrival I found two sick and another had just died, so I tried to find out the history and symptoms of the case as well as possible. The owner told me all of the lambs were "smart as any other lambs up until about five or six hours of their death," and the first symptom was that they seemed to stray a short way off by themselves, diarrhœa, loss of appetite, stupor, finally lying down in a semi-comatose condition and remaining there until death.

From the above symptoms I could not make a satisfactory diagnosis, so I advised killing one of the lambs that was sick, but

in the early stage of the sickness, in order to be able to detect any lesions in the muscles or any of the internal organs in the body.

Accordingly I killed a lamb, bled it out completely and skinned it, with the view of searching for muscular or skin lesions, but found none. On opening the abdominal cavity I found all the internal organs apparently normal, but on rolling the viscera out on the ground there seemed to take place a peculiar peristaltic action or something similar to it. So I slit a small hole in the bowel and out slid a double fold of tape worms that completely filled the small intestines, and I removed seven worms fifty-three feet long, one twenty-eight feet and several from ten inches to four, five and six feet. I placed the whole amount at approximately 425 feet, but I feel sure I could say over 500 feet. I also examined the lungs and heart and found nothing unusually wrong.

This post mortem did not convince me that it was tape worm that was doing the work of destruction, so I held post mortem on one dead a few hours, and found the same results. Then I went and held a post mortem on one that died the night before, and found it just the same and fully as many worms.

The pasture the lambs and older sheep had was an old meadow, but good feed for sheep; and good pens for the night.

AN INTERESTING CASE OF DYSTOKIA.

By DR. S. G. BITTICK, Fort Worth, Texas.

I was recently called to a dairy barn near my city and found a cow in labor. Owner informed me that the animal had been in labor about twenty-four hours. I began getting ready for the undesirable operation, as every one around the dairy had exhausted their strength and knowledge. I had an anterior presentation, but was unable to deliver foetus, so I decided on embryotomy, which I began first by removing limbs, and removed eight well-developed limbs; then removed viscera and then balance of foetus. Animal had four ears, two in normal position and two small but well-developed ears back on the neck just in front of the shoulders. Two extra fore-limbs were attached to point of shoulders just in front of normal limbs, both hind limbs being attached to the biceps muscles. Young animal was fully developed and cow made a good recovery.

CORRESPONDENCE.

Editors AMERICAN VETERINARY REVIEW, New York:

Following a practice adopted during my first year as secretary of the American Veterinary Medical Association, I am appending herewith a preliminary outline of the next annual meeting and which, as is well known by this time, convenes in San Francisco, September 6th next.

Headquarters, the Palace Hotel, are situated at the corner of Market and New Montgomery streets, in the heart of the business district. The ball room of the same hotel will be given over to the association for meeting purposes. This hotel, offering many alluring attractions, is especially suitable for the occasion. Under normal conditions it has ample accommodations for all, but owing to the fact that during the same week there occurs in San Francisco a reunion of "native sons of California," we suggest that, to insure suitable rooms, those contemplating attending the A. V. M. A. meeting engage their accommodations at an early date. Other and excellent hotels are adjacent and offer a range of prices within the reach of all. By corresponding with Dr. R. A. Archibald, chairman of the local Committee of Arrangements, details can be worked out and desirable reservations secured.

It is anticipated that the attendance from among the thousand and more members will be especially large and that, further, the registration will be considerably augmented by the attractive five-day excursion from Chicago. Not alone, however, will the association be at San Francisco in force, but the list of delegates from other veterinary organizations is daily becoming more extensive, indicating a widespread representation of these official and most cordially welcomed visitors.

To all who can find it feasible to make Chicago an assembling point is offered the unusual attraction of a special train, if you will but give us your name; we need 100 or as many more as can aid in making this feature possible.

We present the following itinerary: Leaving Chicago on the night of August 30 (leaving hour to be announced next month),

the Veterinary Special Train will go over the Burlington route to St. Paul, skirting the Mississippi River for nearly three hundred miles, the scenic portion being passed during daylight. From St. Paul to San Francisco the journey will be made over the Northern and Southern Pacific lines. The route from St. Paul will pass through the beautiful Lake Park region of Minnesota; the wheat fields and "Bad Lands" of North Dakota on to the Yellowstone River, which is followed for nearly four hundred miles. Crossing the State of Montana, the towns of Billings, Livingston and Helena are passed to reach the base of the Rockies and the scenic canyon of Northern Idaho. Soon the State of Washington is reached and, although throughout this route varying stops are contemplated, it is at Spokane and Seattle that the banner holdups of the trip are planned.

At the former place the party will be the guests of the Spokane Chamber of Commerce from 12.00 o'clock noon to 8 o'clock p. m., September 2d. During this time the entertainers will tender the party an interurban trolley ride to Lake Cœur d'Alene, Idaho, where a steamer will be boarded for a trip around this beautiful lake. Luncheon will be served on board the boat.

During the early morning hours of September 3d there will be a drive down the west slope of the Cascade mountains, through the Green River Valley, and up to Seattle, where the party will be guests of the Seattle Chamber of Commerce, including among the features a visit to the Government Navy Yards at Bremerton; this, of course, necessitates a sail on Puget Sound. Luncheon will be served and the party will be shown the courtesies of the city of Seattle.

On the morning of September 4th the excursionists will pass over the Mount Shasta route, said to be the most scenic route in all America. Passing through the beautiful Willamette Valley with magnificent views of both Mount Hood and Mount Shasta, the route will continue down into the wonderful California country with one continuous panorama of splendor until reaching San Francisco on the morning of the fifth of September.

Members of this party will find it possible to return east by any direct route they desire to select and the Committee on Transportation Arrangements, headed by Dr. S. B. Nelson, hope that a large number of Eastern veterinarians will avail themselves of this opportunity to travel through the Northwestern part of the United States.

The rates for the excursion are particularly favorable; with stop-over privileges good until October 31st for \$77.50 from Chicago and return. The going Pullman rate will be \$17.50, or if two occupy one berth, one-half this expense for each individual; return about \$14.00.

Parties starting from Eastern points over Trunk Line or Central Passenger Association's lines will do well to consult their local agents before purchasing their tickets, as a slight reduction of the regular round trip price to Chicago will be operative. The round trip joining the special at Chicago from New York, Philadelphia, Boston or Washington, \$108.00 to \$114.00; from Buffalo or Pittsburg, \$91.00 to \$95.00; from Cincinnati, \$84.40; from Cleveland, \$87.75. Again, this same excursion can be participated in by residents of the states of Missouri, Iowa, Kansas, Nebraska or, indeed others, by arranging to join the train at St. Paul; and this at little, if any, extra cost over the present favorable schedule of prices for the convention, and which, bear in mind, are reduced for all points west of the Mississippi river. It will be a grand five-day ride, and all should arrange to join. If you contemplate joining the Veterinary Special at Chicago or elsewhere, write to Secretary Lyman, P. O. Box 901, Hartford, Conn. For information correspond with him.

A word of what we may look forward to in the way of literary entertainment. Many noteworthy contributors have volunteered to aid in making the features of the meeting attractive as well as profitable, not alone to the scientifically inclined veterinarian, the sanitary worker, the research man or the municipal inspector, but, likewise, to the general practitioner or surgeon will be allotted a share of program pleasures. Dr. Louis A. Merillat will open the session especially planned for surgery topics by an address, "The Present Status of Animal Surgery." Kindly undertaking to secure other essayists for the occasion, the doctor announces the following contributors for this surgical session: Dr. George R. White, "Surgical Restraint"; Dr. E. L. Quitman an address, "Hypodermic Anæsthesia in Domestic Animals"; Dr. James Robertson, "Veterinary Dentistry"; "Modern Obstetrics in Animals," by Dr. J. H. Blattenberg and "Remarks on Lameness in Horses," by Dr. Joseph Hughes.

The sessions aiming especially to attract the general practitioners are yet to be completed, but already include such men

and subjects as Dr. J. R. Mitchell, "Acute Indigestion of the Horse"; Dr. H. F. Palmer, "Nuclein"; Dr. D. B. Clark, "John's Disease"; Drs. S. H. Ward and W. L. Beebe, "Hæmorrhagic Septicæmia in Sheep"; Dr. M. P. Ravenel, "Anthrax in Swine"; Dr. J. P. Foster, "Dourine," and Dr. F. F. Brown with title yet to be submitted.

The research men and scientific investigators can equip their store of knowledge by a session offering such topics as "Parasitological Investigations and Instruction in Semi-Tropical Regions," by Professor W. B. Herms; "Phagocytosis," by Dr. B. F. Kaupp and Dr. G. H. Glover; "Animal Diseases in the Imperial Valley of California," by Dr. C. L. Roadhouse, and further contributions by Drs. Stange and Dimock; Dr. J. R. Mohler and Dr. J. W. Connaway, titles to be announced later.

Tuberculosis will have an interesting inning under the auspices of the Committee on Diseases, and will include besides a short committee report a summary of the finding of the International Tuberculosis Commission now working under the initiative of the association, and papers by Drs. S. H. Gilliland and E. S. Deubler, "Artificial Immunization of Cattle Against Tuberculosis"; Dr. C. M. Haring, "Bovine Tuberculosis Investigations at the University of California Farm"; Dr. M. H. Reynolds, subject to be announced.

Milk Sanitation, an all-important factor in the professional life of the present day veterinarian, maintains a gala of interesting features and will be spread before the Wednesday evening session by the following entertaining speakers: Dr. C. A. Dukes, President Alameda County Medical Association; Dr. William F. Snow, Secretary State Board of Health; Dr. S. B. Nelson and Dr. Charles Keane.

Death, an unfortunate asset of age, has crept into our lines during the past year as never before, and hence it is especially fitting that recognition should be made of those who have so loyally aided the purposes of the association in the past. To this end, Dr. W. Horace Hoskins has kindly consented to offer "A Nation's Loss a Profession's Tribute to Fallen Leaders."

Entertainment for the ladies and visitors has not been overlooked, space precludes elaboration of this important feature and its manifold attractions. Come. Bring your families and let them enjoy it. The whole week beginning September 6th will be a feast for the mind and body and those that miss this opportunity lose a chance of a lifetime.

R. P. LYMAN, Secretary.

Editors AMERICAN VETERINARY REVIEW, New York City.

In view of the prospect of many veterinarians and their families visiting the Yellowstone National Park either on their way to or on their return from the San Francisco meeting, I am sending such information as I have been able to secure relative to the park trip.

The park tourist season for 1910 is from June 15th to September 15th. The transportation companies claim that they can not give reduced rates for parties, and therefore my efforts to secure club reduction rates for our friends availed nothing, the companies claiming that the United States Department of Interior regulates their every action, and will not permit them to deviate from their regular advertised prices.

The three principal transportation companies receiving tourists from the Northern Pacific Railroad and their time and rates are:

The National Park Transportation Co. Address, Ft. Yellowstone, National Park, Wy. Time for trip, six days from Livingston, and practically five and a half days in the park. Fifty-five dollars from Livingston, which includes the hotels, board and lodging and transportation.

The Wylie Permanent Camping Co. Address, Livingston, Mont. Time, six days from Gardner. Forty dollars from Gardner, including board and lodging in tents and transportation.

The Shaw & Powel Camping Co. Address, Livingston, Mont. Time, five and a half days from Gardner. Thirty dollars from Gardner, including board and lodging in tents and transportation.

By writing to any one of these companies you can obtain literature on their particular facilities, which will give fuller explanation than I can give here. All those contemplating making the park trip with the "American Veterinary Special" of August 24th from Chicago should arrange with the transportation company previous to starting.

In view of the fact that the Yellowstone National Park is the most picturesque and wonderful of the earth's phenomena, and that thousands of people from all parts of the world visit there each season, it ought to be sufficiently attractive to induce many of our people to take the short time necessary for the trip, when they can get it, too, at nearly the cost of the park trip by taking the "Special of August 24th." The park is owned and controlled

by the United States Government, soldiers being stationed there for the protection of it and the people. The roads are kept as smooth as paved streets, even sprinkling wagons are kept in constant use during the tourist season; however, it is impossible to keep down all of the dust, and it is, therefore, recommended that tourists take dusters with them, also a heavier coat or wrap for use in the evenings.

Gardner is fifty-four miles from Livingston, and the railroad fare for round trip is \$3.40.

I shall be pleased to help arrange for this trip or give any further information.

Very respectfully,

A. D. KNOWLES.

HORSE SHOWS IN 1910.

Culpeper, Va., July 4-5.
 Bayshore, N. Y., July 21-23.
 Long Branch, N. J., July 24-29.
 Manassas, Va., July 27-28.
 Orange, Va., August 3-4.
 Sea Girt, N. J., August 4-6.
 Charlottesville, Va., August 9-10.
 Narragansett Pier, R. I., August 12.
 White Sulphur Springs, W. Va., August 12-13.
 Front Royal, Va., August 16.
 Cobourg, Ont., August 16-19.
 Bar Harbor, Me., August 23-25.
 Berryville, Va., August 23-25.

Warrenton, Va., August 31-September 1.
 Newport, R. I., September 3-6.
 Rutland, Vt., September 6-9.
 Syracuse, N. Y., September 12-17.
 Ogdensburg, N. Y., September 19-23.
 Poughkeepsie, N. Y., September 28-29.
 Bryn Mawr, Pa., September 28-30.
 Brockton, Mass., October 4-7.
 Louisville, Ky., October 10-15.
 Atlanta, Ga., October 18-21.
 St. Louis, Mo., October 24-29.
 New York (National), November 14-19.

DR. C. B. FREDERICK, Canton, O., in renewing his subscription to the REVIEW says: "Dear Sirs—Here's your money—three dollars (\$3.00). The most profitable asset of the busy practitioner."

Secure a berth on the "American Veterinary Special." Write Secretary Lyman now, at his Hartford, Conn., address, P. O. Box 901.

OBITUARY.

FRANCISCO P. BOULANGER, D.V.S.

Dr. Francisco P. Boulanger died suddenly at his home in Hoboken, N. J., June 10, 1910. Dr. Boulanger graduated from the New York-American Veterinary College, class of 1907, and entered as an assistant in the practice of the late Dr. D. J. Dixon, of Hoboken, N. J., where he remained until the spring of 1909, when he left to accept a position in the United States Army, reporting for duty in the Philippines. On the death of Dr. Dixon in September of the same year, he returned to Hoboken to take the latter's practice, which he was conducting up to the time of his death. The doctor was twenty-four years of age and a widower at the time of his death, his young wife having died previously. He is survived by his parents, two brothers and a sister.

CHARLES FALCONER, V.S.

Dr. Charles Falconer died at McKeesport, Pa., November 1, 1909, in the fifty-fourth year of his age, after a protracted illness due to cancer of the stomach. He was a native of Kendal, N. Y., where he was a school teacher and borough principal for several years. He then decided to study veterinary science and entered the University of Pennsylvania, where he attended one session; then spent the next session at Ontario Veterinary College, where he graduated in the spring of 1891. He was a member of the Masonic Fraternity, Woodmen of the World, and Pennsylvania State Veterinary Medical Association. He always spoke kindly of his fellow-men, was genial and generous at all times; was an excellent type of the old school of rough and ready practitioners, and devoted his entire professional career to his one well-chosen locality in Allegheny County, Pa. He was highly respected by a large clientele, was a bachelor, and his estate passed to three surviving sisters in New York State.

J. STUART LACOCK, V.M.D.

Dr. J. Stewart Lacock died at Pittsburgh, Pa., January 6, 1910, in the thirty-fourth year of his age, after a brief illness.

due to pneumonia contracted while on a business trip in the Northwest. He was a native of Allegheny, Pa., where he graduated from the high school, and entered the University of Pennsylvania, where he received his veterinary degree in 1895. He was a general practitioner and Allegheny City Veterinarian for several years. He then moved across the river to Pittsburgh, where he erected and conducted large boarding stables and became interested in large transfer companies and some real estate deals. He was an active member of the leading athletic, business, and social clubs, American Veterinary Medical Association, and the Pennsylvania State Veterinary Medical Association. He took an active part in suppressing and eradicating the outbreak of epizootic aptha in Pennsylvania. Dr. Lacock was an agreeable and polished gentleman and occupied a good social and professional status in Pennsylvania. He is survived by his parents, several brothers and sisters, a widow and four small children.

OLIVER R. MOYER, D.V.S.

Dr. Oliver R. Moyer died April 24, 1910, at his home in Des Moines, Ia., after an illness of several weeks, due to complications which had distressed him for some years. For the past three years he had been in the employ of the U. S. Bureau of Animal Industry at Des Moines, Iowa, as veterinary inspector, and previous to that time practised veterinary medicine at Cedar Rapids, and in earlier years in Western Illinois and Pennsylvania. Dr. Moyer was a graduate of the American Veterinary College, class of 1887; a member of the American Veterinary Medical Association, the Iowa Veterinary Association and several fraternal organizations. His age was 54 years.

ROBERT KOCH, M.D.

Dr. Robert Koch, one of the most eminent bacteriologists of the age, died at Baden, Germany, on May 26, at the age of 67 years. Dr. Koch's contributions to medical science were numerous and valuable. His gift to veterinary science and to the world in general of tuberculin, is invaluable, and beyond all calculation. His death removes from the world a valuable scientist, whose loss will be keenly felt in the field of investigation. A résumé of his life-work and accomplishments will appear in our European chronicles in our next issue.

ABSTRACTS FROM EXCHANGES.

ENGLISH REVIEW.

By Prof. A. LIAUTARD, M.D., V.M.

FRACTURE OF THE BACK, LAST CERVICAL VERTEBRAE AND FRONT RIBS [*P. G. Bond*].—Rather well bred ride and drive mare is in harness, and while walked by the groom one of the reins got around the point of the shaft; the animal bolted and ran away, knocking with force against a wall and apparently turning a complete somersault, when she was then secured and walked to her stable, some 500 yards away. She stands fairly well, showing, however, marks of having received severe injuries. The right shoulder has had a severe blow and in the chest in front there is a deep cup-like depression. She hangs her head at times and keeps the right fore leg away from the sternum. The fetlock is bent forward, and the hind quarters show signs of fractured pelvis. No crepitation could be detected. The next morning the animal seems brighter; has laid down during the night, and keeps doing it for four or five days. In the night of the fifth day she lays down once more, but then is unable to get up. The case is hopeless and the mare is destroyed. At the autopsy there was found a fracture of the back just behind the croup, the last cervical vertebrae was smashed in fifteen pieces, the two first ribs on the right side and the first one on the left were also fractured.

Besides the fact that the animal was able to lay down and get up for four or five days, it is strange that the mare kept up eating and drinking good, defecated and urinated normally, and that her temperature never went higher than 102° F.—(*Vet. Record*.)

CHLORALOSE AS AN ANAESTHETIC FOR DOGS [*H. Gray, M. R.C.V.S.*].—The author writes that it is a very powerful hyp-

notic, producing sound sleep in dogs without causing any irritation of the stomach or intestines, and having no cumulative or disagreeable after effects. Given in anæsthetic doses it abolishes sensibility to pain and diminishes or removes the corneal and solar reflexes. The pupils and eyelids are contracted. When the drug commences acting, the respiration is increased in frequency, then gradually diminishes and becomes deeper as in natural sleep. There may be some slight choreic movements of the limbs or other parts. The temperature is slightly reduced. The anæsthetic sleep may last some hours. The general functions are not affected by its administration. It has none of the disadvantages of chloral. It may be given by intravenous injection or per mouth in the form of mixture, powder, capsule or mixed with food. If given per mouth, full anæsthesia is obtained within half or three quarters of an hour. As an hypnotic the doses are per lb. of the body one-sixth to one-third of a grain; as an anæsthetic, one-third to one grain intravenously, and 1 to 2 grains given in food or draught. Cats are more susceptible to its effects than dogs. The maximum dose should never go beyond half a grain to the lb. of the body-weight. The manifestations are the same in both animals. Mr. Gray thinks that as an anæsthetic it has an advantage over all others, as it is safe and easy to administer.—(*Vet. Record.*)

INTESTINAL OBSTRUCTION IN A DOG WITH UNUSUAL CLINICAL HISTORY [*E. Wallis Hoare, F.R.C.V.S.*].—A medical man owns a three-year-old Airedale dog. Up to three weeks ago he was in perfect health and then he began to lose condition and vomited occasionally. The appetite was capricious and the bowels normal. Careful examination failed to detect any evidence of disease in the various organs and he was placed under observation. He ate daintily, but drank freely. As the bowels had no action, castor oil with five grains of hyd. c. creta was given, and enemas added to them so as to obtain a good action. After a few days obstruction had to be relieved with enemas and also again with oil and hyd. c. creta as before. The time fluid feces were passed. The animal then became weaker, vomited freely of bile-stained fecal material, and died during the night. *Autopsy.*—Small intestines enormously distended with fluid ingesta. Duodenum and stomach contained bile-stained fluid. Mucous membranes yellowish brown in color. Towards the last third of the ileum there was two sudden constrictions between which there

was a large pouch formed by the intestines and containing two stones; one was wedge-shaped and weighing 1 oz. 6 drachms, and the other was smaller, The colon contained rather dried feces.—(*Vet. Record.*)

AN INTERESTING CASE [*Mr. G. H. Livesey*].—This was reported as that of a dachshound which had gone into a wood and on coming back was sick as if he had been eating filth. He frequently vomited. When Mr. L. was called, the dog had vomited a large quantity of pure blood, not mucus tinged with blood, and it was supposed that the dog had ruptured some blood vessel. The next morning he was found dead, having vomited a huge quantity of blood. The autopsy revealed a piece of bone lodged behind the second rib, right over the aorta. "The bone had evidently been in position for about eight days and caused ulceration of the œsophagus, the sharp point having penetrated through it and through the aorta."—(*Vet. News.*)

TUBERCULOSIS IN THE DOG [*Henry B. Eve, M.R.C.V.S.*].—Since considerable time, this retriever has been ailing; and notwithstanding that he was carefully nursed by the owner, has not improved. He appears weak and in an emaciated condition. He can scarcely stand. He is also covered with lice (*Tricodectes Latus*), and besides has tape worm. He manifests great thirst, has excessive diarrhoea, and when micturating is forced to assume the position of a bitch, being unable to stand on one leg. His appetite is very capricious. Good nutrition, rich diet, syrup-iodid-ferri are prescribed and baths to remove the lice. For a few days he seems to improve, but soon has a relapse. He is tested with tuberculin with negative results. The injection was made in the region of the orbit which become swollen at the eyelids with conjunctivitis and lacrymation, but no elevation of temperature. The dog died forty-eight hours after. Large tumor-like growths were found in the spleen, which was itself much enlarged. These tumors showed little tendency to caseation. Some have a sarcomatous appearance. Lungs have lesions of broncho-pneumonia without caseation, and in some parts were in a state of atelectasis.—(*Vet. Record.*)

DISPLACEMENT OF THE URINARY BLADDER IN A HEIFER [*S. J. Notton, M.R.C.V.S.*].—After difficult parturition a small Guernsey heifer was unable to rise and strained violently. The

afterbirth was expelled, but the straining continued, and a rose-red prominence was seen through the labia of the vulva. This increased, and outside the vulva had attained half the size of a regulation association foot ball. It was the urinary bladder, filling the entrance of the vulva, with the os uteri above it and much distended by urine. To empty it was quite difficult, yet was done by opening the urethra; also turned upon itself, with a finger, and when the organ was empty it could be returned into position. But few doses of sedative medicine had to be given before it remained in place, the heifer straining violently for some little time and until the sedative effects were produced. For four days after, catheter was passed once daily. The heifer recovered without further trouble.—(*Vet. Journal.*)

SINUS IN INFERIOR MAXILLARY BONE [*E. Wallis Hoare, F.R.C.V.S.*].—Old farm horse had difficulty in feeding caused by a swelling on the lower jaw on the near side, which is increasing rapidly. It is hard, painful and shows a fistulous tract which permits a probe to enter a large cavity in the bone. The second molar tooth of the affected side is missing and the probe passes from the fistula within the cavity. By trephining the opening of the maxillary is enlarged, the cavity entered and the tooth, decayed and black in color, is extracted. After removal of semi-masticated ingesta, irrigations were carried out to keep the parts cleaned. The horse was unfortunately lost sight of, but he certainly did well.—(*Vet. Journal.*)

GANGRENOUS STOMATITIS AND GASTRITIS IN A DOG—SPONTANEOUS RECOVERY [*Prof. G. Wooldridge, F.R.C.V.S.*].—History.—For the three first weeks that he was with his owner the dog appeared well, but soon began to vomit. He had fair appetite, ate small quantity at a time. Frequently during the day would vomit black offensive liquid. He then began to dribble black slimy stuff. He had diarrhoea. Took worm medicine without passing worms. One day he spat a dirty yellow bit of flesh, thin and doubled up. He had difficulty in drinking, appearing to bite rather than lapping his water.

Condition When Seen by the Writer.—Dog is quite bright, thin and rather weak. On opening the mouth it was found that he had lost the whole of the free portion of the tongue back to the frenum, which explained the difficulty in drinking. The stump was healing well. The dog vomited no more and his appetite

was improving. Temperature was 102.2° F. Tonic treatment with collutorium were prescribed with directions to have the dog provided with water in a deep basin, from which he soon learned how to suck it. He recovered well.—(*Vet. Journal.*)

PROSTATIC ENLARGEMENT CURED BY CASTRATION [*Prof. F. Hobday, F.R.C.V.S.*].—Aged 10 years, this dog suffers with very obstinate constipation. He also has a large perineal hernia as big as a good size cocoanut. Rectal examination reveals the presence of an enlarged prostate, quite as big as a tangerine orange, and painful on pressure. Medical treatment having failed to relieve, castration was performed. The prostate became atrophied and less than normal size, the pelvic hernia was reduced and the constipation disappeared.—(*Ibidem.*)

INTERESTING OVARO-HYSTERECTOMY [*Same Author*].—Very valuable Pekingese bitch is very heavy in whelp. She has fainting spells, but as she is very near the date of whelping, only careful nursing, dieting and judicious use of stimulants were recommended to keep her going to the day of the expected event. Finally she became so very ill that it was imperative to deliver her at once. Under anæsthesia of chloroform, ovaro-hysterectomy was performed and eight fine puppies removed. Tinct. of iodine was used externally as antiseptic. The recovery was uninterrupted. The puppies did well with their foster mother for five days when they all took cold and died in one night.—(*Ibidem.*)

TUBERCULOSIS IN CALCUTTA [*S. N. Mitter, Bengal Vet. College*].—Referring to the presence of bovine tuberculosis in India, a concise history is given of four cases that were brought in the College Hospital. The first case was sick only one month, and at the autopsy lesions were found in the lungs and pleura, the lungs being full of tuberculous foci with caseation and calcification. The bronchial glands were also tuberculous. The bacilli were abundant in the lesions. Other animals from the same herd reacted with tuberculin test, but no clinical signs of the disease were present. The second case presented marked symptoms which were confirmed by tuberculin, the temperature rising from 101° to 104° F. at the eighteenth hour. The lesions were chiefly confined to the serous membranes, lungs, heart and liver. Parietal and visceral serous membrane being studded with in-

numerable tuberculous nodules. There were some in the lungs, the lymphatic glands, the diaphragm and the liver. Bacilli were plentiful. The tuberculin used with that animal was at least four years old. The third case presented symptoms not indicating tuberculosis. There was salivation and diarrhœa. Rinderpest was suspected. The animal showed symptoms of pneumonia and died in three days. She had lesions of tuberculosis in the lungs, bronchial and mediastinal glands. The intestines were congested. The fourth case was seen shortly before death. When it occurred lesions were found in the lungs, with a large number of tuberculous abscesses.—(*Journ. Comp. Pat. and Therap.*)

MALIGNANT GOITRE IN A DOG—CARCINOMA OF THE THYROID GLAND WITH METASTASIS IN THE LUNGS [*John Lindsay, M.D., and D. McLeod, M.R.C.V.S.*].—Four-year-old bull dog had since three weeks a swelling in the left sub-maxillary region. It increased and burst, discharging blood-stained pus. Treated, the swelling subsided but returned and again rapidly grew larger. The dog is off his food, has great thirst and drinks any quantity of water. His appearance is poor; he has twitchings of the muscles; the temperature is 102° F., pulse 80. The face and neck are œdematous, especially on the right side. There is profuse salivation. The throat and teeth are quite healthy. Iod. of potassium is prescribed internally and iodine liniment externally. This treatment was carried out for two weeks. The œdema subsided and left a distinct tumor, freely movable, on one side of the larynx. This was taken for swollen lymphatic glands. Tuberculosis was also suspected. The treatment was continued for a few days and then came directions from the owner to operate if the conditions indicated it. It proved such that the animal was destroyed. The histological examination revealed the nature of the lesions, portions of the lungs and of the lobes of the thyroid gland, viz., a mixture of sarcomatous and carcinomatous degeneration.—(*Ibidem.*)

RUPTURE OF THE SMALL INTESTINES WITH PERFORATIVE PERITONITIS [*E. Wallis Hoare, F.R.C.V.S.*].—This aged mare had been in very poor condition, but on receiving patent food in addition to her ration, she has much improved. She has had many repeated mild attacks of colic. One morning she is found breathing quickly with head depressed and nostrils dilated. She strains violently to micturate and purges at intervals; feces very

fetid. She has tympanitis; the pulse is quick and weak. The mucous membranes are deeply injected. Temperature is up 102.4° F. The countenance is very anxious. Attempts to pass a catheter are difficult and no water can be drawn off. In the afternoon she becomes uneasy, lays down and rises, yet shows no evidences of great pain. She dies. At post mortem the abdomen when open gives escape to rush of fetid gases. Lesions of diffuse peritonitis are present and a large number of *Ascaris Megaloccephalus* are found. There is a small rupture near the commencement of the ileum, through which a worm is protruding. A small sac had formed in the intestines and the edges of the rupture show inflammatory action. Other parasites were found in the intestines as well as in the peritoneal cavity. No evidence of enteritis were present.—(*Vet. Record.*)

NEURECTOMY IN HORSES [*Malcolm Allan, M.R.C.V.S.*].—The author has operated about three horses. Median neurectomy he finds the most useful in cases of knee splints, contracted tendons and sesamoid lameness. Sometimes he has operated on both legs at once with good results and never known any complications to occur. Median and ulnar neurectomy conjointly is unsuccessful. Degeneration takes place within one or two months. Ulnar neurectomy he has performed for exostosis on outside of fetlock and knee. Anterior tibial neurectomy he considers useless, as the horse never seems to get proper control over his legs after. Posterior tibial neurectomy is worth doing for spavin, contracted tendons and ringbones. A percentage get sound, some remain lame. Plantar neurectomy is useful for ringbones, navicular disease and laminitis, if the soles are not dropped. He has seen one neuroma after median neurectomy, the only one he has ever observed.—(*Vet. Record.*)

FRENCH REVIEW.

By Prof. A. LIAUTARD, M.D., V.M.

OSSIFIED CARDIAC AURICLES IN A HORSE [*Mr. Roeland*].—This is not a rare lesion. The present case was observed in a nine-year-old bay horse killed because of glanders. About eight or ten days before being killed, he presented two symptoms which indicated cardiac lesions, viz., large swelling under the

thoracico-abdominal inferior region and a marked venous pulse. There was no swelling of the legs. On account of the ugly disposition of the horse, auscultation of the heart was not made. The lesion was located on the right auricle. The cavity was considerably reduced by almost complete ossification and the great thickness of the myocardium, which was quite vascular, very hard and compact. Externally it was covered with a thick coat of cartilage. The horse had worked well all the time except five or ten days before his death.—(*Rev. de Comp. Pathologie.*)

CAMPHORATED OIL IN THE TREATMENT OF PNEUMONIA IN HORSE [*Mr. Grollet*].—The author has used it in hypodermic injections with great advantage in infectious pneumonia, when heart failure was threatening. In broncho-pneumonia of young animals, young dogs principally, it has given good results. The doses used were 10, 20, 25 c.c. of oil for horses. The injections can be repeated several times during the day. In dogs the dose is from half to five c.c.—(*Ibidem.*)

TORSION OF THE LARGE COLON IN THE HORSE [*A. Labrousse and A. Louis*].—Three-year-old gelding presented the symptoms of a mild attack of colic. He received hypodermic injections of pilocarpine and walking exercise, with dry frictions on the abdomen. He is to be seen later. Then the colic has become more severe, the conjunctivæ are congested, pulse is small, the temperature 39° C. There is tympanitis on the right flank. At the rectal exploration it is observed that the pelvic curvature of the large colon is pushed to the left, pressing in the pelvis and is dilated. The third portion of the colon is placed immediately above the second and more to the right. The blood vessels of the colon are felt gorged with blood. The rectal examination permits also to feel the point where the large colon is twisted. The bladder is emptied with a catheter, the horse is cast and hobbled and his body made to roll as is done for cattle to relieve the torsion of the uterus. Half a roll from the left side on his back and again until the complete turn is made. One arm in the rectum feels that the abdominal cavity has more space, the pelvic curvature has resumed its position. A second complete turn of the body is executed and the horse allowed to get up. He is relieved, has no more colic, passes wind and defecates. A second injection of pilocarpine, enemas and ruthargol completed the treatment.—(*Rec. de Med. Veter.*)

PERITONITIS FOLLOWING IMPROPER PUNCTURE OF THE RUMEN—CHRONIC INFLAMMATION IN CONNECTIVE TISSUE—OCCLUSION OF THE INTESTINES BY ABSCESES [*Pierre Bitard*].—Suffering with indigestion, a cow had puncture of the rumen performed by the owner, very near the lumbar vertebræ and the point of the ilium. Not relieved the writer is sent for two days after. The animal is standing, moaning when made to move; the peristaltic contractions of the rumen are almost absent. Complete anorexia, no rumination and severe constipation are present. The temperature is 38.2° C., pulse 82. A purgative treatment is prescribed. Light diet. No improvement. Pilocarpine and sulphate of veratrine are then resorted to. Recovery is slow to take place. It is accompanied with mild relapse and now and then with dull colic. The diet is increased but with it the symptoms become more alarming and finally fearing a fatal termination the cow is sent to the butcher. In the carcass there was found a thick organization of the connective tissue uniting the rumen to the surrounding parts, which required the use of the sharp instrument to divide it. Between the sheaths of the omentum a number of little abscesses, closed, isolated or in clusters. They were not in communication with the small intestines nor in the peritoneum and contained pus which was of various nature, thick, creamy and without odor or again grumelous, or floating in a white liquid mass. These abscesses prevented the migration of feces through the intestines and would have ultimately caused death by putrid infection.—(*Prog. Veter.*)

ABSCESES OF STRANGLES WITH PERFORATION IN THE OESOPHAGUS [*Mr. A. Magneron*].—Eight days after being purchased this yearling filly was taken with strangles. She had thick, repeated coughs, soreness of the parotid region, difficult deglutition, pharyngeal discharge, etc. Notwithstanding abortive treatment the parotid gets the seat of diffused swelling, very painful on pressure. The temperature rises to 39.5° C. There is now difficulty in the prehension of food, the appetite gives away and the nasal discharge becomes abundant and having an odor of caries. After two days the parotid abscess is open and instead of creamy characteristic pus, there is escape of a semi-liquid fluid, mixed with food and having a repulsive odor. The animal is offered a pail of water; she drinks, but all the fluid comes out through the opening of the abscess. Normal feeding being impossible, the animal is sustained for a few days by rectal

injections, but she dies after the second day. The parotid gland was found necrosed, the parotido-auricularis muscle destroyed, and an abundant purulent collection of the guttural pouch with an irregular perforation of the œsophagus immediately at its origin, were the lesions observed at the autopsy.—(*Rev. Veter.*)

PARALYSIS OF THE PENIS FOLLOWED WITH COMPLETE SLOUGH OF THE CORPUS CAVERNOSUM [*Prof. Coquot*].—This occurred in an old horse which was found in his stable, cast and riding a flying movable partition, and to rid himself of his position had struggled during the night. When delivered he presented a number of superficial wounds of the peritoneum, abrasions of no great importance. Three days later, as he was taken out, he had paralysis of the penis, which was hanging swollen and cold out of the sheath. Scarifications, cold douches, and iodide of potassium internally failed to give any relief and amputation was decided. The operation was performed in the usual classical way. Flaps of the slitted urethra after proper dissection being secured to the skin, an elastic ligature being applied a short distance from the point where the penis was to be amputated. Every thing went as usual for some two weeks, the elastic ligature and the stump of the cut penis sloughing off without difficulty, but instead of subsiding, the swelling of the parts remained and a few days later a small piece of mortified tissue, soft and soaked in pus, was found protruding from the stump. Taken hold of with forceps and gently pulled out, it came as a long greyish ribbon, bifid at its superior extremity, measuring about 60 centimeters in length, thicker at its superior border and having a semi-circular groove in the entire length of the inferior. It was the entire corpus cavernosum with its erectile tissue. Above the urethra and parallel to it there was another canal formed by the fibrous envelope of the corpus cavernosum. After this complication, which requires simple attention, the recovery went on without trouble. *Prof. Coquot* explains the complication as the result of thrombosis of the bulbo-cavernous arteries, sequelæ of the original accident received in the stable.—(*Rec. de Medec. Veter.*)

PECULIAR CASE OF INTESTINAL INVAGINATION [*E. Tenier*].—This gelding had very violent colic. His pulse is normal, respiration not accelerated, visible mucous membranes not congested, ears cold, no tympanitis, but the animal has very violent spasmodic pains and he throws himself down with great violence.

He is constantly shaking his head up and down. Warm injections and arecoline are ordered. There is no improvement the next day and the symptoms are about the same, but the animal is continuously striking the floor or the walls of his box, with the right fore foot and is looking most of the time towards his right flank. An intestinal obstruction or a volvulus or a twist of the large colon are suspected. Rectal examination is unsatisfactory. But pressure upon the large intestines or traction made on it give rise to violent expulsive efforts. Large doses of aloes are prescribed. After three days purgation takes place. But soon the symptoms grow worse and the animal dies. *Post mortem*.—Sero-bloody exudation in the abdomen, accused congestion of the cross of the cæcum, and when the large colon is cut open, it is found obstructed by a mass of dark purplish color, which proves to be the free portion of the cæcum, which is invaginated and completely enclosed in the cavity of the folded colon. By its opening of communication with the colon, the cæcum had inverted itself so as to introduce two-thirds of its dimensions into the large colon; the cross of the cæcum alone, held by its peritoneal ligaments was not able to follow the entire process of invagination.—(*Rec. de Medec. Veter.*)

FIBROMA OF THE VAGINA IN A COW—INJECTION OF RESORCINE—RECOVERY [*Mr. G. Patard*].—Four-year Normandy cow is reported as having a mild vaginal prolapsus. Examination through the vulva reveals the presence of a hard, very large mass which is attached on the right side of the vaginal wall. It protrudes from the vulva and interferes with micturition. The cow is secured, after dissection made carefully of the peduncle; the growth is removed with the ecraseur. Quite a large hemorrhage follows which is stopped by packing and suture of the vulva. These were removed after twenty-four hours; the animal has another hemorrhage; Resorcine 1 to 100 is given in injection; the expulsive efforts are gone and hemorrhage does not return. These injections were kept up for a few days. Complete cicatrization followed. The tumor was a fibroma and weighed 1 kilog. 750 grammes.—(*Ibidem.*)

PHALANGEAL OSTEITIS COMPLICATED WITH OSTEITIS FROM LAMINITIS [*Mr. G. Morel, Army Veter.*].—This is the record of a case where the lesions of both affections were found. A six-year-old mare, rather well bred, had a slight lameness of the right fore leg. She also had an abscess at the poll. The off fore foot

is slightly warm, and the sole is tender all over. The mare has always exhibited hesitancy in putting weight on her fore feet; she steps on the toe, principally, on hard ground. Osteitis of the phalanx is diagnosed. The mare is treated accordingly. The abscess is soon cured. But the lameness remains the same and one morning the symptoms of laminitis leave no doubt as to her condition. Bleeding, pilocarpine, tartar emetic, antifebrine and baths do not save her from chronic lesions and the mare is sold.

Condition of the Os Pedis after Boiling.—The anterior face of the bone is covered with long crests running from up to downwards. The plantar notches are transformed in foramina, the basilar processes extend over the articular surfaces and the retrossals beyond the end of the preplantar fissure. The anterior border is soft and brittle, the vascular openings are very large and the bony substance is much rarefied. The spongy tissue is ecchymotic. There are marks of severe rarefying osteitis.—(*Rev. Gen. & Med. Vet.*)

INDIGESTION WITH OVERLOADING—GASTROTOMY BY FREE INCISION MADE WHEN THE ANIMAL IS IN EXTREMIS [*Mr. P. Bitard*].—Fine draught steer has indigestion with an overloaded rumen, and notwithstanding two punctures of the rumen made by the owner, the animal is threatened with suffocation. He drops down almost breathing his last. With a straight bistouri a free incision is made by the writer, and although 7 or 8 centimeters long, it is insufficient to allow the escape of the fermenting food contained in the rumen. It has to be enlarged 10 centimeters more and then the rumen can be cleared of an enormous quantity of its contents. Repeated tractions of the tongue, cold applications on the head, threatening asphyxia is avoided and the animal slowly seems to return to life, helped with alcoholic drenches. When after waiting an hour the prospects are brighter, the author proceeded to suturing the wound, a not very easy task, as on account of the bad position in which the animal was when the incision was made, the edges of the various layers of the rumen muscles and skin did not correspond very well. However, the sutures were applied involving the three coats, a thread ribbon aseptized with peroxide being used. Stimulating drenches of wine or alcohol were kept up. External disinfection was made with peroxide. An abscess by subcutaneous infiltration and a fistulous wound remaining for a while were the only events of the recovery, which required several months to be complete. (*Prog. Veter.*)

SOCIETY MEETINGS.

SOCIETY OF THE ALUMNI OF THE SCHOOL OF VETERINARY MEDICINE, UNIVERSITY OF PENNSYLVANIA.

The annual reunion for 1910 was held June 15th. The forenoon witnessed the culmination of the three years' course at the alma mater for the class of 1910. They, 35 in number, received their diplomas at the hands of Provost Harrison in the American Academy of Music and then listened to an oration by the Secretary of State, Hon. Philander C. Knox.

In the afternoon, the alumni both young and old, gathered on the pleasantly situated grounds of the H. K. Mulford Vaccine and Antitoxine Farm at Glenolden, where the yearly contest in field sports took place. The baseball game between the alumni and the graduating class was won by the former by a score of 10 to 5. The fat man's race was run in three heats, the first being won by John R. Mohler, the second by A. D. Goldhaft, and the final by A. D. Goldhaft. The 100 yards dash was easily captured by the deer-footed G. M. Graybill, while the supple J. H. Engle excelled in the broad jump. J. F. McDonough won the quarter-mile run. All victors, including the members of the winning baseball team, were given valuable souvenir prizes for their achievements at the evening entertainment.

A short visit was paid to the antitoxine laboratory under the guidance of the director, Dr. Parke Hitchins, who as well as the other members of the firm showed unlimited kindness and facilitated in every way the plans for the enjoyment of the afternoon.

At 7 p. m. supper was served at the Veterinary Department, and the business meeting of the society was taken up at 8.15. President Charles L. Colton called the meeting to order in "Leonard Pearson Hall." The roll call was dispensed with and the minutes of the previous meeting (June 15, 1909) were read and approved.

Dr. John W. Adams offered the following resolution which was unanimously adopted:

Mr. President—During the past year we have suffered an unexpected and almost irreparable loss in the death of our late fellow alumnus and colleague, Leonard Pearson, Bachelor of Science, Cornell University, 1888; Doctor of Veterinary Medicine, University of Pennsylvania, 1890; Doctor of Medicine Causa Honoris, University of Pennsylvania, 1908; Professor of Principles and Practice of Comparative Medicine and Dean of the Veterinary School, University of Pennsylvania; Secretary of the Pennsylvania State Livestock Sanitary Board; State Veterinarian of Pennsylvania, occupying with marked distinction at various times during his all too short career, nearly every position of leadership and trust in the gift of his fellow co-laborers, in the zenith of his life with honor and opportunity of greater accomplishments crowding thick upon him, he has been taken from us. He has left enduring monuments of his wisdom and untiring energy in this our own veterinary school which he loved so dearly; in the magnificently organized Pennsylvania system of veterinary control, and more enduring and of vastly greater import, he has lived his strong, pure, hopeful, wholesome, helpful, inspiring life in our midst and impressed his splendid personality upon all who knew him intimately.

The society does hereby gratefully acknowledge its great indebtedness and its profound sorrow and records this slight tribute to our late brother, Leonard Pearson.

E. M. Michener, chairman of the Pearson Memorial Committee, reported that the committee had had several meetings in reference to organizing and planning the form of memorial that would be most suitable to perpetuate the memory of Dr. Leonard Pearson. This committee was appointed last fall by President Colton and is composed of twelve members, seven of whom are alumni and five are members of the profession in Pennsylvania. He stated that it had been considered advisable to solicit contributions from all who had been friends of Dr. Pearson and interested in his work, and for this reason the above additions to the committee were made.

At first the committee had difficulty in deciding the nature and scope of the memorial. At the time the first circular letter was mailed, this point had not been determined. After considering the subject carefully and weighing all suggestions, the committee decided to recommend that an oil painting of Dr.

Pearson should be obtained and that a memorial tablet should be erected to his memory. From the contributions received it was soon evident that considerably more money would be raised than could be used for the portrait and tablet. It was then decided to donate the surplus to the library in which Dr. Pearson had been so much interested.

The most satisfactory plan appears to be to consider such contributions as an endowment fund for a portion of the library to be known as "The Leonard Pearson Memorial Library." The income derived from the investment of this fund is to be used in the purchase of books and periodicals from year to year, and by this means to keep the library replete with all that is newest in veterinary literature, and thus perpetuate the memory of our great alumnus in a form that shall be always fresh and progressive. By this plan the Leonard Pearson Memorial Library Fund will remain open for all time to receive contributions from any source.

Contributions have been received from sixty sources in amounts ranging from two to one hundred dollars each. The total amount received and pledged so far is \$700. There are over 400 living graduates of the Department of Veterinary Medicine, University of Pennsylvania, in practice at the present time. Only about forty of this number have contributed. Many others have promised subscriptions and have shown an interest in the matter, but have been waiting till it was determined in what way the money was to be spent and for what purpose. It is believed that a high percentage of our alumni will contribute to his fund now that the plan has been definitely outlined.

It is the intention of this committee to canvass the medical profession, agriculturists and all who may feel an interest in this matter for contributions, and it is hoped that several thousand dollars may be raised for the Leonard Pearson Memorial Library.

Dr. Michener's report was discussed at considerable length by many of the members. A motion was made, seconded, and regularly adopted to follow fully the recommendations of the committee.

The painting will cost about \$500. Mrs. Elsa Koenig Nitzsche has been selected to paint the portrait. Mrs. Nitzsche is a sister of Dr. August Koenig, class 1893. Her paintings have already attracted much favorable comment in this country and abroad. Some of her portraits decorate the halls in other depart-

ments of the university. Mrs. Nitzsche was personally acquainted with Dr. Pearson, and we feel fortunate in having one so competent to do the work.

Carl W. Gay, acting in the absence of the dean, Louis A. Klein, who is abroad at the present time, stated that he had received authority from the Board of Trustees to name what has previously been called "Alumni Hall," the "Leonard Pearson Hall." Dr. Gay emphasized the power that Dr. Pearson possessed of attracting persons to him, and especially in getting men together for mutual benefit. He spoke of the many pleasant meetings that he had anticipated and the details that he had so carefully planned in the construction of this beautiful hall.

J. D. Cecil, on behalf of the graduating class, presented a tablet to the memory of Dr. Pearson. This is the last class to which he gave personal instruction. The tablet is to be placed in "Leonard Pearson Hall" with the one donated by the class of 1909 to the memory of Claude Bourgelat.

Owing to the non-appointment of a committee on Necrology, the president reported the death during the year of the following alumni: Leonard Pearson, '90; J. Stewart Lacock, '95; J. M. Lawrence, '08; J. B. Taylor, '00; J. W. Thomas, '09; Charles M. Cullen, '87; A. H. Wallace, '97; A. C. Walls, '93; C. J. Woodruff, '03; J. O. Forsythe, '93, and Alexander Mecray, '08.

The secretary was instructed to formulate messages of sympathy from the society and to forward the same to the relatives of the deceased members.

The Library Committee reported, through Dr. Harper, the chairman, that about two years ago, at the request of the society, circulars were sent to the alumni soliciting subscription in behalf of the library. At the 1909 annual meeting he reported the receipt of \$182.50 less expenses. Since that date by approaching the alumni through a selected member of each class he had received \$57, thus making the total alumni subscription for library purpose \$287.50.

In view of the general effort to be made on behalf of the library under the plan formulated by the "Leonard Pearson Memorial Library Committee," it was deemed unwise to have more than one financial appeal addressed to the alumni for library funds, therefore the library committee was thanked for its services and discharged.

The plan proposed for reorganization of the Society of the University of Pennsylvania from the general Alumni Society

was on motion referred to the executive committee for consideration and to report at the next annual meeting.

J. N. Rosenberger, class 1910, briefly reviewed the methods that have been adopted by the undergraduate society. The Veterinary Medical Society of the University of Pennsylvania, to stimulate an interest in its members to take an active interest in its welfare. The plan has worked well. It required that each member of the society of the senior class should present a paper which had to meet with the approval of the executive committee before he was entitled to the certificate of active membership. As a result thirty members of the graduating class had received the customary certificate of the society.

The following resolutions were adopted and ordered to be spread on the minutes and a copy forwarded to Dr. S. H. Gilliland and Dr. Louis A. Klein:

1. The Society of the Alumni of the School of Veterinary Medicine of the University of Pennsylvania hereby conveys to Dr. S. H. Gilliland its congratulation on his appointment to the position of State Veterinarian of Pennsylvania and assures him of its loyal support and confidence in the work to which he has been called.

2. The Society of the Alumni of the School of Veterinary Medicine of the University of Pennsylvania wishes in this resolution to offer to its fellow alumnus, Dr. Louis A. Klein, its warm congratulations on his appointment as dean of the school and to assure him of its willingness to co-operate in every possible way to further the establishment of the school and to promote its interests and influence.

A copy of the 1910 Record was presented to the society by H. Preston Hoskins, chairman of the Record Committee, and was received by S. J. J. Harger to whom it is dedicated.

The election of officers for 1910 and 1911 resulted as follows: President, Robert J. Formad, 1888; Vice-President, Edgar W. Powell, 1900; Historian, S. J. J. Harger, 1887; Secretary and Treasurer, B. M. Underhill, 1895; Executive Committee, J. W. Adams, 1892; Charles Williams, 1887, and J. N. Rosenberger, 1910.

After the adjournment of the business meeting, the society spent an enjoyable meeting singing old and new college songs and indulging in the usual exchanges of experiences and reminiscences.

S. LOCKETT, Secretary.

VETERINARY MEDICAL ASSOCIATION OF NEW YORK CITY.

The regular meeting of this association was held at the Berns Veterinary Hospital, 74 Adams street, Brooklyn, on Wednesday, June 1 at 2 p. m., with the president, Dr. E. B. Ackerman, in the chair. There were twenty-five members and visitors present. The minutes of the previous meeting were read and approved. After some other routine business had been transacted, the members adjourned to the operating room where a fine clinic was held.

Through the courtesy of Dr. Geo. H. Berns and other members of the association, a number of cases were presented for diagnosis and operation. Among the interesting cases offered were the following: Case of azoturia presented by Dr. Berns; usual history. Treatment: Extraction of six quarts of blood from jugular, intravenous injections of four quarts normal saline solution, purgative of aloes. This case was able to get up without assistance on second day and recovery was confidently assured.

Second Case.—Mule presented by Dr. Berns. History: February 12th operated upon for bad quittor; no improvement in lameness for one month. Again placed on operating table and found to be suffering from badly infected varicular bursæ; after second operation animal made speedy recovery, and at this time is working daily without lameness.

Third Case.—Large grey gelding presented by Dr. Berns. History: On February 3d horse fell on street and could not get up. Removed to hospital in ambulance. Put in slings. Could stand properly, but when made to move forward fetlock of right hind leg became flexed and leg dragged forward. When made to back, entire leg seemed stiff. The case at first appeared like patella luxation, but no alteration could be noticed there. Diagnosis made of paralysis of exterior pedis muscle. The leg from hoof to hock was placed in plaster of paris bandage to keep limb fixed; allowed to stay for five weeks. When removed animal showed great improvement. This case was of much interest to many of those present, and Dr. Berns said that in his long practice he had seen but three cases like it.

Fourth Case.—Gelding operated upon for paraphymosis by Dr. Darke about a year ago. Operation consisted of removal of eighteen inches of indurated tissue, including the prepuce.

Penis was then sutured to fascia of sheath. The penis was carried well up within the sheath and operation was highly successful.

Fifth Case.—Bay horse presented by Dr. Ackerman. History: Reported to local Board of Health as a suspicious case of glanders; nasal discharge, no reaction from mallein, agglutination not yet heard from. History of pneumonia in early part of February, but for two months temperature had fluctuated between 101 and 103; unthrifty appearance; brachial lymphatic corded, slight induration of sub-maxillary region, nasal discharge not characteristic of glanders. A vote was taken and the opinion of most of the members was that it was a case of glanders. The autopsy of this animal will be awaited with interest.

Sixth Case.—Black gelding presented by Dr. Darke showed thickening of septum nasi, with nasal polyps and granular growth covering septum.

Seventh Case.—Presented by Dr. Berns; showed a gelding with numerous and large polyps in nasal fossæ.

Eighth Case.—Bay gelding presented by Dr. Cochran, with diseased second lower molar and fistulous opening through the inferior maxilla. Advised trephine and extraction of tooth and curetting of fistular tracts.

Ninth Case.—Bay gelding presented by Dr. Louis Griessman; ambulance horse with high spavin of right hock, lame for one year; repeated blistering afforded temporary relief. Cunean tenotomy recommended.

Tenth Case.—Horse presented by Dr. Berns for quittor operation; animal secured on operating table; anæsthetics, chloral and cocaine locally. Operation technique being a modification of Bayer and Fricke. Dr. Ray Glannett operated, assisted by Dr. Berns, and the work was performed in a neat and skillful manner. Only one incision was made through the coronary band and this at the bulb of the heel. This method obviates possibility of quarter-crack.

Opportunity for discussion was given as each case was presented and the first clinic of this association was declared a success.

Dr. John A. McLaughlin, of Providence, R. I., gave a demonstration of administration of ether, using an apparatus of his own invention. This was an interesting event, the patient, a dog, becoming anæsthetized in a very short time and without the usual struggles.

Dr. F. C. Grenside moved a vote of thanks to Dr. Berns for the use of his hospital and for material presented, and to all other members who contributed to the program by contribution of cases. This was promptly seconded and carried.

The meeting adjourned at 6 p. m.

W. REID BLAIR, Secretary.

VIRGINIA STATE VETERINARY MEDICAL ASSOCIATION.

The seventeenth annual convention of this association was held in Murphy's Hotel, Richmond, Va., January 14, 1910. The roll call showed a larger attendance than ever before in its history. The enthusiasm of the members was noticeable from the very first meeting, and it was quite evident they came with the full determination of making this the best meeting ever held. They did it, too. I think there was not a man present who did not voice that sentiment to his comrades before saying good-bye.

Our annual meeting is the designated time for election of officers, so this constituted the first feature of business. All of the old officers were re-elected, as follows:

President—Dr. S. C. Neff, Staunton, Va.

First Vice-President—Dr. J. G. Ferneyhough, Burkeville, Va.

Second Vice-President—Dr. Chas. McCullough, Howardsville, Va.

Secretary-Treasurer—Dr. W. G. Chrisman, Raleigh, N. C.

Board of Censors—Dr. S. C. Neff, Dr. J. G. Ferneyhough, Dr. Chas. McCullough, Dr. W. G. Chrisman, Dr. H. Bannister, Dr. H. S. Willis, Dr. W. T. Gilchrist, Dr. R. R. Clark.

Examining Board—Dr. S. C. Neff, President; Dr. H. Bannister, Secretary-Treasurer, Roanoke, Va.; Dr. Thomas Frasier, Richmond, Va.; Dr. H. S. Willis, Rappadan, Va.; Dr. J. G. Ferneyhough, Burkeville, Va.

The literary program consisted of several splendid essays, addresses and reports on interesting cases. Dr. Chas. McCullough, formerly of the Agricultural College or V. P. I., also State Veterinarian, gave a splendid essay on "Comparative Study of Ophthalmia."

"Results of Two and One-Half Years' Work in Milk Inspection in the City of Richmond" was carefully rehearsed and explained by Dr. C. E. Levy, Chief of the Health Department.

The State Veterinarian, Dr. J. G. Ferneyhough, gave a very interesting and instructive synopsis of the "Relation of the State to Bovine Tuberculosis."

A most interesting and instructive account of the "Veterinary and Live Stock Sanitary Work in Cuba" was given by Dr. N. S. Mayo, Professor of Animal Husbandry and Veterinary Medicine in the Agricultural College, who formerly had charge of this work.

"The Influence of Influenza Anti-toxine in Distemper of Dogs," was the subject of Dr. S. C. Neff's paper. Dr. Neff in his usually business-like manner gave a very interesting account of his success with this treatment. Having cured one hundred and three out of a total of one hundred and eight patients in twelve months.

Dr. W. G. Chrisman, formerly veterinarian for our Dairy and Food Commissioner, now State Veterinarian of North Carolina, gave an account of "North Carolina's Method of Controlling Tubercular Reacting Animals."

The following gentlemen reported very interesting cases that had come under their observation since our last association: Dr. H. Bannister, Dr. Thomas Frasier, Dr. H. S. Willis, Dr. Charles Epps, Dr. Frasier Smith.

The association adjourned to meet in Norfolk, Va., July 14, 1910. The Examining Board to meet the preceding day. Our entertainment committee has secured headquarters at the Linhaven Hotel.

W. G. CHRISMAN, Secretary.

COLORADO VETERINARY MEDICAL ASSOCIATION.

This association held its semi-annual meeting June 4, 1910, at Denver, Col. The following members answered to roll call: Drs. Chas. G. Lamb, M. J. Nordliffe and C. Wade, of Denver; Geo. H. Glover, B. F. Kaupp, of Fort Collins; Robt. H. Bird and Thos. Quinn, of Greeley; Geo. H. Dickey, Colorado Springs; E. J. Foreman, Trinidad; James Toppin, Pueblo; Fred. Gregen, Eaton; A. G. Brocker, Steamboat Springs.

The executive board reported favorably on the application of Vernon J. Ayres, of Sterling, and he was duly elected to membership.

The following applications were submitted to the executive board: Drs. F. D. Hylton, Las Animas; Walter F. Stewart, Trinidad; Edward H. Aicher, Delta; A. G. Wadleigh, La Junta; Gordon McClain, Lamar; J. C. Pace, Calxico, Cal.; C. Schafer, Hugo; W. S. Craig, Montrose; G. C. Shaw, Montrose.

Drs. Chas. G. Lamb, E. J. Foreman and Geo. H. Glover were appointed by the president to draft amendments to the present veterinary law to strengthen its weak parts and present them to the next legislature.

The president appointed Dr. Geo. H. Glover and B. F. Kaupp a committee on resolutions with instructions to draft suitable resolutions voicing the sentiment of the association by condemning the proposed change of the head of the B. of A. I. to the medical profession, and resolutions recommending the United States Congress to pass the Army Veterinary bill before it in regard to the rank of the army veterinarian.

Reports of Disease.—Dr. Geo. H. Glover reported that the college was investigating the diseases of poultry and would render a detailed report later.

Dr. B. F. Kaupp reported the finding of several cases of pernicious anemia around Longmont, Fort Collins and Windsor.

Dr. E. J. Foreman reported many cases of tetanus among the mules of the Colorado Fuel and Iron Co.

The meeting adjourned to January, 1911.

M. J. NORDLIFFE, Secretary.

RESOLUTIONS PASSED BY THE COLORADO VETERINARY MEDICAL ASSOCIATION AT DENVER, COL., JUNE 4, 1910.

Whereas, The Bureau of Animal Industry has reached a high state of proficiency, under the guidance of the Secretary of Agriculture and the chief of the Bureau in Veterinary Sanitary Service, and

Whereas, The present Meat Inspection Service under the Bureau of Animal Industry protects the people from the purchase of diseased meat and from fraud and adulteration of other food stuffs entering the channels of interstate commerce, and

Whereas, The live stock quarantine service under the same bureau has reached a high state of perfection in the control of

contagious diseases among animals, and is successfully co-operating in state veterinary supervision in said work, and

Whereas, The value of this work would be greatly curtailed, being placed in a subsidiary manner as proposed in the Owens bill; therefore, be it

Resolved, That the Colorado Veterinary Medical Association assembled respectfully asks Congress to defeat this bill.

GEO. H. GLOVER,
B. F. KAUPP,
Committee.

MAINE VETERINARY MEDICAL ASSOCIATION.

The quarterly meeting of this association was held at the Bangor House, Bangor, April 13, 1910, at 8.30 p. m., with President Joly in the chair and 17 members present.

The minutes of January meeting were read and approved.

Dr. Bert. L. Pratt, of Caribou, was present as a visitor and his application for membership presented and referred to the Executive Committee for a report at the July meeting.

Dr. F. L. Russell read a very interesting and instructive paper entitled "Horse Breeding in the State of Maine," which was very ably handled and freely discussed by all present.

Dr. A. L. Murch reported two cases of ovariectomy in mares in his practice and much discussion followed.

It was voted that our association send a representative to the meeting of the Live Stock Breeders' Association at Waterville, April 14, 1910, and our president, Dr. Joly, agreed to represent the association.

It was the unanimous vote of the association that we indorse the name of Dr. Joly for reappointment by the Governor on the Board of State Veterinary Examiners, and a notice be sent to the Governor to that effect.

It was voted to hold next meeting in Portland, July 13, 1910, with papers by Drs. W. S. Lord, W. H. Lynch, W. H. Robinson and I. L. Salley. Meeting adjourned at a late hour.

C. L. BLAKELY, Secretary.

MASSACHUSETTS VETERINARY ASSOCIATION.

The twenty-sixth annual banquet and meeting of the Massachusetts Veterinary Association was held at Young's Hotel, Bos-

ton, Wednesday evening, April 27, 1910. Dr. Madison Bunker, the president, called the meeting to order at 5.30 p. m., twenty-nine members being present.

The minutes of the March meeting were read and approved. Moved by Dr. Perry and seconded by Dr. Paquins that three members of this association be appointed as delegates to the September meeting of the A. V. M. A. at San Francisco.

It was moved and seconded that the May meeting be held at the Massachusetts Agricultural College at Amherst, Mass.

Dr. Harry N. Kingman was elected a member of the Association.

A committee was appointed by the president to bring in a list of names for candidates for office for the ensuing year.

The nominating committee presented the following names: For president, Dr. Madison Bunker; first vice-president, Dr. A. S. Cleaves; second vice-president, Dr. W. M. Simpson; secretary-treasurer, Dr. J. H. Seale, all of which were duly elected.

The secretary-treasurer's report showed the association to be in good standing financially, with a total membership of seventy-eight.

Directly following this meeting, twenty-nine members and eight guests sat down to dinner. Among the guests were Drs. Gill, Blair and Kingston, of New York City, and Dr. Daly, of Lawrence, Mass. Dr. Austin Peters acted as toastmaster, and at the finish of the report called upon each of the above-named gentlemen to speak. Drs. Frothingham, Winchester, Babson and Mahoney also spoke.

J. H. SEALE, D.V.S., Secretary.

YORK COUNTY VETERINARY MEDICAL SOCIETY.

This society held its meeting in the National Hotel parlor, York, on Tuesday, June 7, 1910, with a large attendance of members. Secretary E. S. Bausticker gave an interesting account of an acute case of tetanus in a horse that had been under his care recently and which recovered. Among other subjects discussed by the members in attendance were the following: Tuberculosis in cattle, congestion of the lungs of horses, pneumonia, strangles and paralysis in cows during pregnancy, and the best treatment for each.

The next meeting will be held in this city on Tuesday, September 6, 1910.

E. S. BAUSTICKER, Secretary.

LAWS GOVERNING VETERINARY PRACTICE.

Corrections received after June number went to press.

STATE.	Preliminary Education.	Professional Training.	Licensing Tests.	Registry.	Executive Officer and Address.	Administrative Board.	Remarks.
Colorado.	No requirements.	Graduation from recognized school.	Examination by State Board	License recorded in office of clerk of the county.	W. W. Ward, Secretary, Denver.	State Veterinary Medical Board.	
Michigan.	No requirements.	Graduation from recognized College.	Diploma from recognized Veterinary College, having a course of 3 yrs. of 6 mos. each.	With Secretary State Board.	S. Brenton, Acting Secretary.	Mich. State Vet. Board.	Reciprocity of license.
Rhode Island.	None.	None.	Recognized school and examination.	State Board.	J. S. Pollard, Providence.	State Board of registration.	

DR. W. H. BOYNTON, Instructor in Pathology in the New York State Veterinary College, has just left for the Philippine Islands, where he has accepted the position of pathologist of the veterinary service. Dr. Boynton spent three years in the University of California and then came to Ithaca to study bacteriology. He decided later to take the veterinary course and since his graduation in 1908 has been retained as an assistant and instructor. He has done some very excellent work in connection with diagnosis of glanders and rabies and at the present time had important investigations in connection with these diseases under way. While in the University of California he was a student of Dr. A. R. Ward, who was recently made chief veterinarian of the Philippines. In Dr. Ward's investigation of rinderpest and other animal diseases of the Islands it was necessary that he should have the services of an experienced laboratory man in pathology. Dr. Boynton sails on June 28 from San Francisco on the steamer Siberia for Manila.

NEWS AND ITEMS.

Dr. H. E. KINGMAN was busily engaged in tuberculin-testing the cows of Ft. Collins, Col., during May.

Dr. B. F. KAUPP has recently been investigating swamp fever in the neighborhood of Colorado Springs, Colo.

MISS ELEANOR McGRATH, class of 1910, was the first lady to receive the degree at the Chicago Veterinary College.

DRS. IRA WATTS, J. C. Pace and Rex Van Sickle, all of the class of 1910, Veterinary Department, Colorado Agricultural College, successfully passed the recent Philippine examination.

Dr. B. F. KAUPP will be busily engaged investigating the diseases of poultry in Colorado during the summer. He and Dr. Geo. H. Glover tuberculin-tested the dairy cows of Leadville, Col., during the early part of June.

PROF. H. D. GILL, of the New York-American Veterinary College, has been winning some races at the matinees during the month of June on the New York Speedway, and incidentally benefiting his usually good health. We believe the Doctor has discovered the spring of immortal youth in his trotting horses.

Dr. THEO. F. KREY called at the REVIEW office the first week in June, when spending a few days with his old friends and neighbors, who are always glad to see him. While in New York the Doctor had the opportunity of attending the June meeting of the Veterinary Medical Association of New York City, and witnessing an unusually good surgical clinic.

Dr. ANGUS MACINTOSH, of Perth, West Australia, called at the REVIEW office the second week in June, having visited England on his way to America. He was about to visit Chicago, Detroit and other western cities, then return to New York and sail from that port to France on his return home. He is accompanied on his trip by his wife and little daughter. The Doctor

has traveled extensively during his life, is a very earnest veterinarian and extremely interesting conversationalist.

THE TWENTY-SEVENTH ANNUAL COMMENCEMENT OF CHICAGO VETERINARY COLLEGE.—The twenty-seventh annual commencement of Chicago Veterinary College took place in the auditorium of the Central Y. M. C. A., 153 La Salle street, Chicago, Tuesday evening, April 5, 1910.

The scene in the auditorium that evening, before the exercises began, was a gay one. A large audience, consisting of friends, wives and sweethearts of the graduates, filled the boxes on either side of the stage, the parquet and overflowed into the galleries. Favors of red and white roses were presented, with illuminated programs, to ladies as they entered the hall. The stage was bedecked with American and College flags and flowers. To one side of it, on a stand, awaiting the recipients, was an orderly pile of diplomas. In the centre of the front of the stage was a table containing the medals of honor and other prizes, while a huge bunch of flowers, roses, carnations, tuberose, surrounded by ferns and smilax, peered from a vase in the centre of the table. In the front of stage, on either side of the table, great bunches of roses, sent by admirers to graduates, reposed, setting off the stage and exhaling precious odors.

On the stage were seated all the members of the college faculty, Professor W. L. Williams, of Cornell University, and Rev. J. B. Shaw, D.D., LL.D., pastor of the Second Presbyterian Church, Chicago.

After music by the orchestra and the invocation by the Rev. Dr. John Balcom Shaw, Dr. Joseph Hughes, president of the college, gave his presidential address. He dwelt briefly on the history of the college and the increments which have made it successful as a teaching institution. He pointed out the various achievements of the college, its fruitful production of men who attained to the highest government positions open to veterinarians, to the perhaps at least equally arduous work of success in all forms of private practice. He complimented the graduating class on its record, and, turning to the assembled faculty, expressed his appreciation of their energies exercised in behalf of the students. Following him, Dr. A. H. Baker, dean of the college, made a short speech, in which the degree Doctor of Comparative Medicine was officially conferred upon the candidates present.

In accordance with custom the new graduates filed across the stage, the name of each recipient of a diploma being spoken aloud, with the new title, as each passed by the president.

The degree of Doctor of Comparative Medicine was conferred upon 138 men.

Dr. Maximilian Herzog, Professor of Pathology, was master of ceremonies in the distribution of medals and prizes. The doctor, besides being an ardent investigator of disease, is in leisure and social hours much of a humorist. Each of the prize winners came in for a joke upon himself, from the jovial master of ceremonies, before the prize was safely in his hands. This frightened away dullness from the scene and kept the audience either smiling or uproarious.

Sixty-five competitive prizes were distributed.

Dr. Joseph Hughes then said he was pleased to read the honor list. As the name of each man on the honor list was read he arose and bowed, according to custom, to the faculty and to the audience. Thirty-one gentlemen merited a place on the honor list.

Then came the presentation of the framed group-picture, containing the photographs of each member of the class with those of the members of the faculty in the centre of it. Inasmuch as the class graduating was so large this year, the group-picture was unusually large. A graceful speech, on presentation of the picture to the college was made by the class president, Dr. W. L. Hollister.

In response, on behalf of the faculty, Dr. E. L. Quitman made many felicitous remarks in which he congratulated the class on its success, referred to its deportment and its honorable membership. In closing he promised, in thanking the class for the picture, that it would hang in a prominent place in the college.

Dr. W. W. Arzberger, of the graduating class, then delivered the valedictory address, which was unusually well prepared, well delivered and well received. Lack of space forbids our reproducing it. The final address of the exercises was made by one of the most stirring and fluent preachers in Chicago, the Rev. John Balcom Shaw, D.D., LL.D., pastor of the Second Presbyterian Church.* It was a speech notable for its literary flavor, its strong manly sense, its appeal to the mind and heart, its appreciation of the value of the modern veterinarian to the community. After Dr. Shaw's speech, the Illinois Quartette, which had interspersed vocal music throughout the evening, closed the exercises with the reposeful, nocturnal song "Sunset."

* Published in this issue of the REVIEW.

VETERINARY MEDICAL ASSOCIATION MEETINGS.

In the accompanying table the data given is reported by many Secretaries as being of great value to their Associations, and it is to be regretted that some neglect to inform us of the dates and places of their meetings.

Secretaries are earnestly requested to see that their organizations are properly included in the following list :

Name of Organization.	Date of Next Meeting.	Place of Meeting.	Name and Address Secretary.
Alumni Ass'n, N. Y.-A. V. C.....	Sept. 6, 7, 8, 9, -10	141 W. 54th St. San Francisco.	J. F. Carey, East Orange, N. J.
American V. M. Ass'n.....	1st and 3d Thur. of each month	Lec. Room, Laval Un'y, Mon.	R. P. Lyman, Kansas City, Mo.
Arkansas Veterinary Ass'n.....	2d Fri. ea. mo...	Chicago.....	Horace E. Rice, Little Rock.
Ass'n Médécalle Veterinaire Française "Laval".....	2d Tues. ea. mo	San Francisco.	J. P. A. Houde, Montreal.
B. A. I. Vet. In. A., Chicago.....	Ottawa.....	H. A. Smith, Chicago, Ill.
California State V. M. Ass'n.....	Chicago.....	J. J. Hogarty, Oakland.
Central Canada V. Ass'n.....	Denver.....	A. E. James, Ottawa.
Chicago Veterinary Society.....	Macon.....	J. M. Parks, Chicago.
Colorado State V. M. Ass'n.....	Springfield.....	M. J. Woodliffe, Denver.
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